Rural Canada:
A PROFILE

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Rural Canada: A Profile

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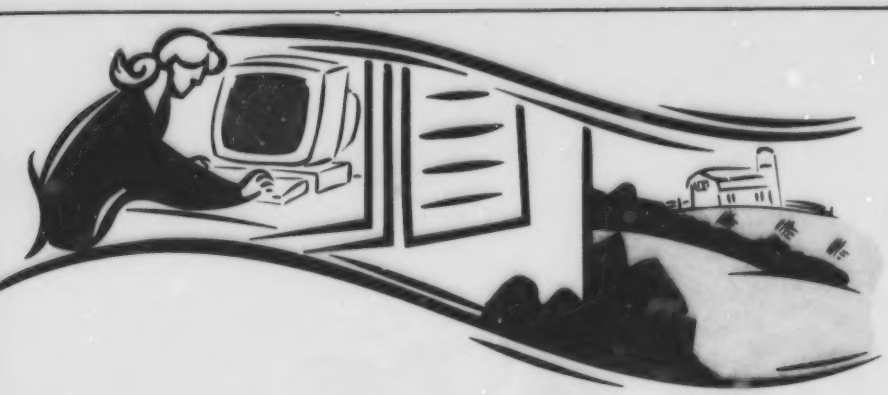

Foreword

Rural Canada: A Profile is a product of the Research Sub-Committee of the Interdepartmental Committee on Rural and Remote Canada.

The Sub-Committee is made up of representatives of Human Resources Development Canada, Statistics Canada, Natural Resources Canada, Agriculture and Agri-Food Canada, Canadian Heritage, Canada Mortgage and Housing Corporation, Indian and Northern Affairs Canada, and Environment Canada. *Rural Canada: A Profile* brings together information and data from these departments and others to provide a holistic overview on major trends facing rural Canada.

The Sub-Committee owes a debt of gratitude to Dr. Richard Rounds and his staff at the Rural Development Institute, Brandon University, Brandon, Manitoba, who skillfully organized the material into the indicators format.

It is the hope of the Sub-Committee that there will be future editions of this publication. If you have any comments or suggestions in this regard please contact Ken Donnelly at (819) 994-6701 or by fax at (819) 953-5941.

Canada's rural indicators

A Rural Development Program was established by the Organisation for Economic Co-operation and Development (OECD) in 1990. One element of this program is the rural indicators project, which aims to improve our understanding of rural conditions by collecting internationally comparable data. As part of Canada's contribution to the OECD initiative, this report reviews the social, economic, and environmental situation in the rural and remote regions of the country.

The Selection of Indicators

In selecting indicators the OECD used several criteria, namely, the indicators must meet a clearly defined objective, they must be reliable (founded on a sound scientific basis), and the data must be available in all member nations. The following major topics were selected:

1) population and migration,

2) economic structure and performance,

3) social well-being and equity, and

4) environment and sustainability.

In this report, fourteen indicators are assessed which deal with five subject areas: demography, employment, economic well-being, social well-being, and Aboriginal issues (see below). In addition, three environment indicators are included in Appendix A. These represent "work-in-progress" by the Interdepartmental Committee on Rural and Remote Canada. (The public is invited to comment on the rural environment indicators; see Appendix A for more details.)

Subject area	Rural indicator
Demography	1. Population change
	2. Population age structure
	3. Population migration
Employment	4. Employment and unemployment rates
	5. Employment by industry
	6. Employment by age
	7. Employment in primary industries
Economic well-being	8. Per capita income
	9. Change in real per capita income, 1980-90
Social well-being	10. Hospitals — beds and physicians
	11. Level of schooling
	12. Housing (non-native, off-reserve)
Aboriginal issues	13. Demography of Aboriginal populations
	14. Aboriginal socio-economic circumstances

Methodology

The data on rural indicators in this report are assembled for three types of regions — agglomerated, intermediate, and rural and remote regions — according to what share of their populations live in rural communities. This scheme is described by the OECD in its publication *Creating Rural Indicators for Shaping Territorial Policy*.[1]

A community is defined as "rural" if its population density is less than 150 people per square kilometre and "urban" if it is equal to or more than 150 people per square kilometre. In Canada, a "census consolidated sub-division" (CCS) — which is generally a municipality in the west and a township in the east — is designated to represent a "community." For example, the town of Rivers and the surrounding farming population in the municipality of Daly, Manitoba comprise a CCS, as do the town of Pakenham, west of Ottawa, and the surrounding population of Pakenham Township in Lanark County.

Census divisions (CDs), which are generally counties in some provinces but only exist for statistical purposes in others (e.g., Manitoba and Saskatchewan), are designated as "regions." A region is defined as "rural and remote" if more than 50% of its population lives in rural communities. For example, Lanark County west of Ottawa, including the large town of Perth, is classified as a "rural and remote" region. A region is defined as "intermediate" if between 15% and 50% of its population lives in rural communities. Intermediate regions tend to contain small cities; for example, Sherbrooke, Peterborough, Regina, and Saskatoon are located in intermediate regions. In an "agglomerated" region, less than 15% of the population lives in rural communities. These regions contain Canada's largest cities. (In classifying the regions an additional criterion is employed. If a region has a CCS whose population is over 300,000, it is classified as agglomerated, regardless of whether it meets the population thresholds established by the OECD.)

To recognize the diversity of "rural and remote" regions, some sections of this report (indicators 1-11) present data for three types of "rural and remote" regions: those adjacent to metropolitan centres (metro-adjacent sub-regions), those not adjacent to metropolitan centres (non-adjacent sub-regions), and northern hinterlands sub-regions.[2] For other sections it was not practical to retrieve statistics by these geographic regions.

For Aboriginal issues, rural areas are defined as those with populations of fewer than 1,000 people, and for the housing indicator as those with fewer than 2,500 people. (Note that over 30% of the rural population outside centres with 1,000 or more people lives within a census metropolitan area.) For the rural environment indicators (see Appendix A) there is no explicit definition of "rural." Rather, some environmental issues of most concern to "the countryside," broadly defined, are discussed.

Local and regional boundaries can have a significant impact on some variables, and changes in CCS and CD boundaries and in population distribution over time can alter their community and regional classification. In this report, boundary changes are controlled by imposing the 1986 census boundaries and the associated OECD classification on the 1981 and 1991 data.

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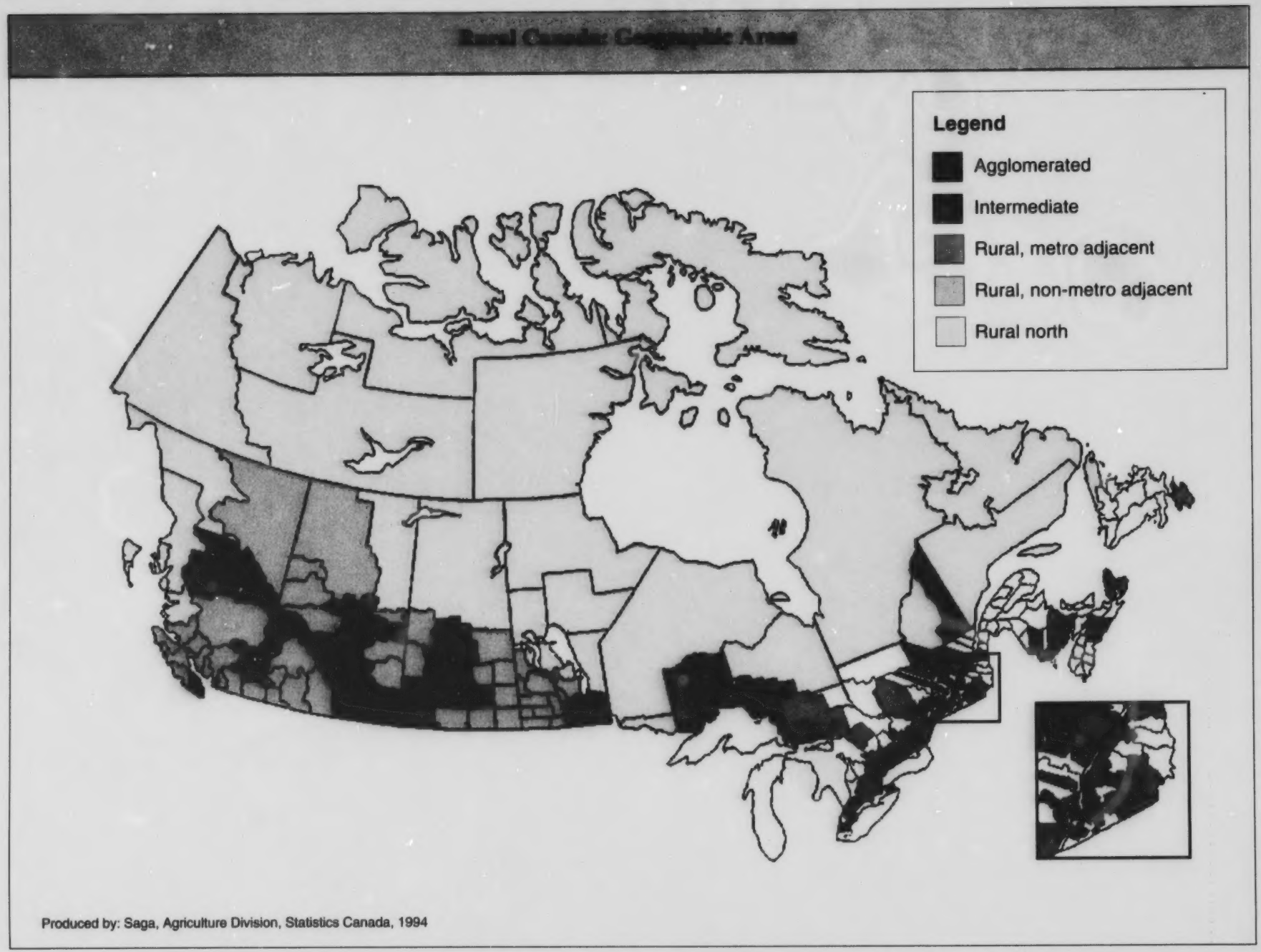
1 OECD, Paris, 1994.

2 Using the Beale code approach; see Philip Ehrensaft and Jennifer Beeman (1992), "Distance and Diversity in Nonmetropolitan Economies," in R.D. Bollman, *Rural and Small Town Canada*, Thompson Educational Publishing, Toronto, pp. 193-224.

The resulting standardized OECD regional classifications for Canada are shown on the map below.

The presentation of each indicator is standardized as far as possible. The data are presented and discussed by OECD-defined regions and rural sub-regions across Canada and then by recognized political-geographic areas. The political geography is used because many policies and programs are controlled provincially. Five political-geographic areas are distinguished: Atlantic Canada (Newfoundland, Prince Edward Island, New Brunswick, and Nova Scotia), Quebec, Ontario, the Prairie provinces (Manitoba, Saskatchewan, Alberta), and British Columbia. As well, for some indicators, the Northwest Territories and the Yukon are separated from other northern areas.


Legend
Agglomerated
Intermediate
Rural, metro adjacent
Rural, non-metro adjacent
Rural north
Produced by: Saga, Agriculture Division, Statistics Canada, 1994

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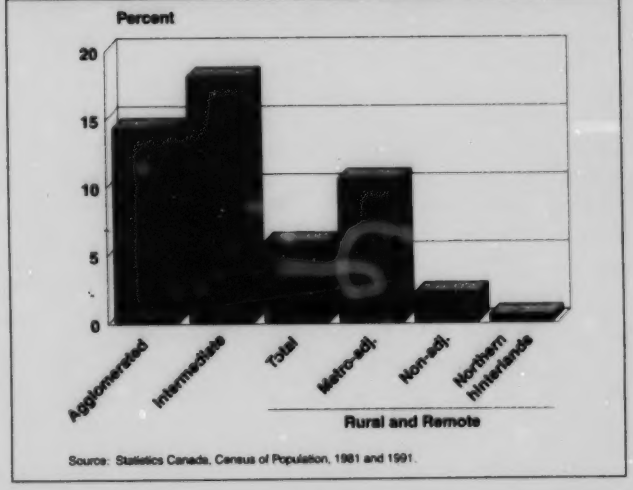
Rural population growth is concentrated in areas near cities

Changes in population affect rural Canada in many ways. They may reflect depopulation, a loss of human resources, and a decreasing demand for services; or population growth, a gain in human resources, and an increasing demand for services.

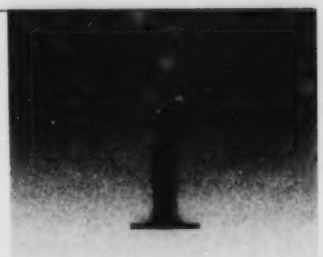
Populations in rural and remote regions increased by 6% overall during the 1980s, but metro-adjacent sub-regions grew far more (11%) than did non-adjacent sub-regions (2%). Populations in the northern hinterlands were stable during the 1980s. Overall, the share of Canada's population in rural and remote areas declined from approximately 35% in 1981 to 33% in 1991.

The highest population growth rates were in agglomerated and intermediate regions, at 14% and 18%, respectively. As a consequence, the proportions of the Canadian population in both agglomerated and intermediate regions increased approximately 1 percentage point over the period, while that in rural and remote regions declined by almost 2 percentage points (Tables 1 and 2).



Source: Statistics Canada, Census of Population, 1981 and 1991.

Area classifications	Canada		Atlantic		Quebec		Ontario		Prairies		B.C.	
	#CDs	Pop. change (%)	#CDs	Pop. change (%)	#CDs	Pop. change (%)	#CDs	Pop. change (%)	#CDs	Pop. change (%)	#CDs	Pop. change (%)
Agglomerated (urban)	19	14	1	-5	7	6	5	16	3	15	3	26
Intermediate	48	18	2	14	19	14	15	21	2	13	—	—
Rural and remote												
Total	209*	6	43	2	50	2	29	12	55	2	26	12
Metro adjacent	79	11	15	5	18	9	17	16	23	5	6	19
Non-adjacent	106	2	26	<0	29	10	1	8	26	-3	15	8
Northern hinterlands	24*	<1	2	-3	3	-8	2	-2	6	7	5	<0



Rural Population Change

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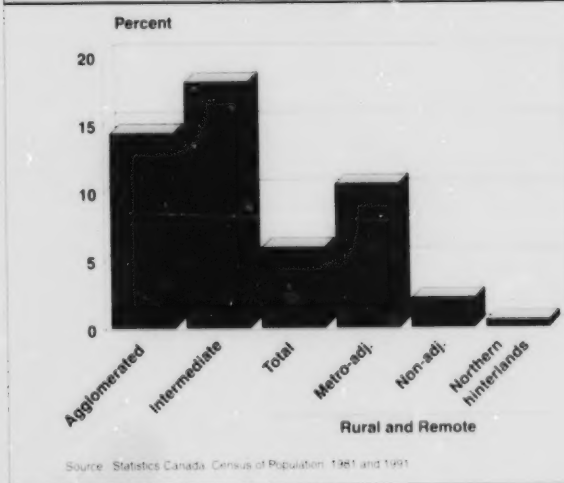
Figure 1
Percent change in population, 1981-1991



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Intermediate	48	18	2	14	19	14	15	21	2	13	—	—
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Source: Statistics Canada, Census of Population, 1981 and 1991.
* 6 CDs in the Yukon and NWT are included in the Canada total.

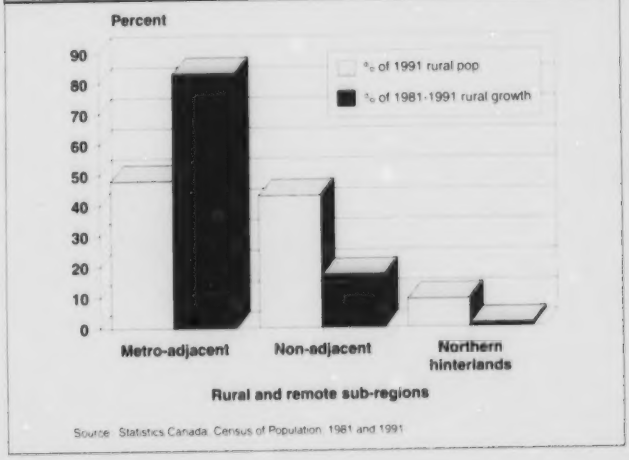
Population growth in metro-adjacent sub-regions was highest in British Columbia (19%) and Ontario (16%) and lowest in Atlantic Canada (5%) and the Prairies (5%). Being adjacent to a city does not necessarily imply growth, however. For example, some census divisions near Regina and Saskatoon actually lost population between 1981 and 1991.

Although the population in the northern hinterlands increased marginally (0.5%) between 1981 and 1991, it actually stagnated or declined in all political-geographic areas except the Prairies, where it increased by 7% and in the Yukon and Northwest Territories. Population growth in the north was driven by a 24% increase in the Northwest Territories and the Yukon. Factors such as the high Aboriginal birth rate, the decrease in infant mortality, and rapid growth in some centres whose economies benefitted from resource mega-projects, contributed to the increase.

The highest population growth rate of all regional classes in 1981-91 was in intermediate regions (Table 2). Thirty-four of the 48 intermediate census divisions are in Quebec and Ontario, particularly in and around Toronto and Montreal. Virtually all of those that had growth rates higher than the 14% average for agglomerated regions were close to these two cities. For example, in York Regional Municipality, which borders Toronto, the population doubled during the 1980s.

Among the three sub-regions of rural and remote Canada, metro-adjacent census divisions accounted for 48% of the population in 1991, non-adjacent census divisions 43%, and the northern hinterlands 9% (Figure 2). However, of the population growth in rural and remote Canada during 1981-91, 83% occurred in metro-adjacent areas, only 17% in non-adjacent areas, and less than 1% in the northern hinterlands.

Figure 2
Growth was concentrated in metro-adjacent sub-regions in rural and remote Canada, 1981-1991



Source: Statistics Canada, Census of Population, 1981 and 1991

Table 2
Population by region, Canada, 1981 and 1991

Region	1981 Population		1991 Population	
	Actual	%	Actual	%
Agglomerated	10,633,380	43.7	12,149,995	44.5
Intermediate	5,227,290	21.5	6,168,680	22.6
Rural and remote				
Total	8,482,345	34.8	8,978,070	32.9
Metro-adjacent	3,907,805	16.1	4,318,375	15.8
Non-adjacent	3,820,170	15.7	3,901,490	14.3
Northern hinterlands	754,370	3.1	758,205	2.8
Canada total	24,343,015	100.0	27,296,745	100.0

Source: Statistics Canada, Census of Population, 1981 and 1991.

2

Population Age Structure

Young populations are declining in rural regions

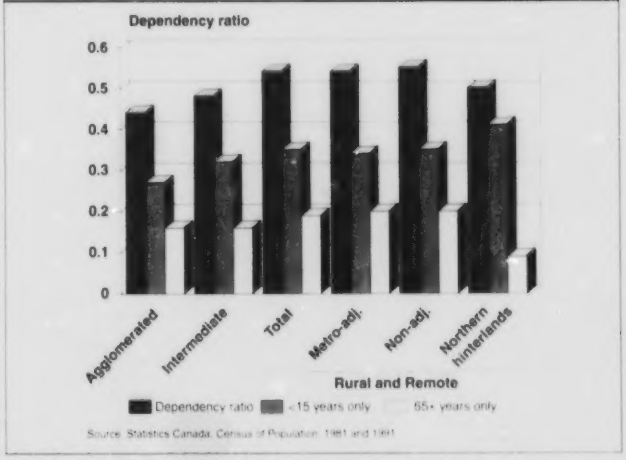
The age structure of a population is important for two reasons. First, the number of people in each age group determines the maturity and size of the labour force and the demand for services such as education. Second, the relative proportions of various age groups determine the way the total population will change. To assess the age structure and changes in age distributions, four age categories are used: 1) 0-14 years, 2) 15-39 years, 3) 40-64 years, and 4) 65 years and over.

Overall, the Canadian population is aging. The share of the population in the 0-14 and 15-39 age groups declined in every region between 1981 and 1991 (Table 3). Conversely, the share in the 40-64 and 65 and over age groups increased in all regions.

In rural and remote Canada in 1991 the highest share of people under 40 years of age was in the northern hinterlands, and the highest share of seniors was in metro-adjacent and non-adjacent sub-regions.

Figure 3

1991 Dependency ratios are highest in rural and remote Canada



Source: Statistics Canada, Census of Population, 1981 and 1991

Table 3

Population distribution by age class in Canada, 1981-1991

Region	Total Population		0 - 14 yrs		15 - 39 yrs		40 - 64 yrs		65+ yrs	
	1981	1991	1981	1991	1981	1991	1981	1991	1981	1991
			Percentage change in each age class							
Agglomerated	10,633,380	12,149,995	20	19	44	42	26	28	10	11
Intermediate	5,227,290	6,168,680	23	22	43	40	24	27	9	11
Rural and remote										
Total	8,482,345	8,978,070	25	23	41	38	23	27	10	12
Metro adjacent	3,907,805	4,318,375	24	22	41	38	24	27	11	13
Non-adjacent	3,820,170	3,901,490	25	22	41	38	23	27	11	13
Northern hinterlands	754,370	758,205	30	27	46	43	19	24	5	6

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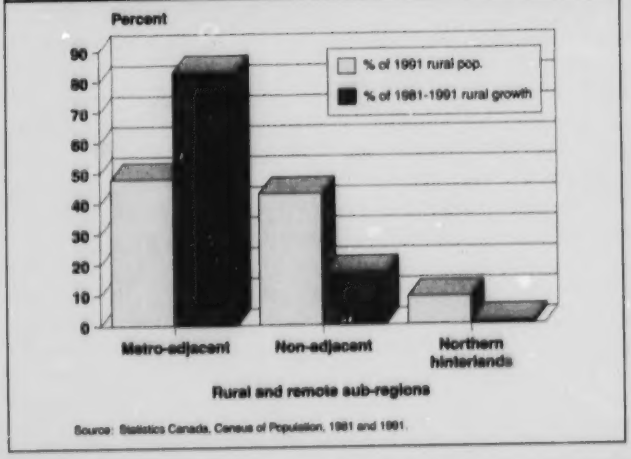

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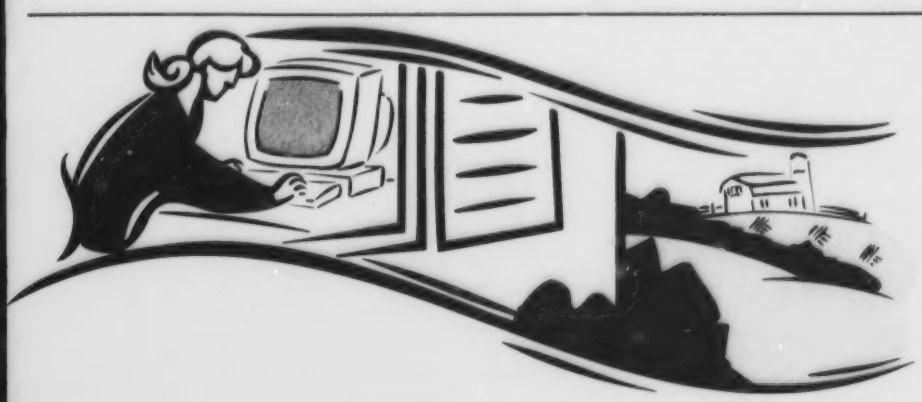

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In rural and remote Canada in 1991 the highest share of people under 40 years of age was in the northern hinterlands, and the highest share of seniors was in metro-adjacent and non-adjacent sub-regions.

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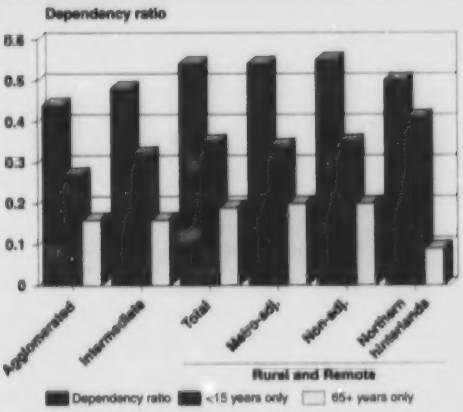

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Source: Statistics Canada, Census of Population, 1981 and 1991.

Rural and remote Canada had the highest dependency ratio of the three major regional groups (Figure 3). (The dependency ratio is the number of people not of working age [0-15 years and 65 years, and over] divided by the number of people who are of working age [15-64 years old]). The overall rural dependency ratio of 0.54 was also relatively consistent among its sub-regions. There were, however, differences in the young and elderly components of the dependency ratio. In metro-adjacent and non-adjacent sub-regions the elderly were 36% of the ratio and the young were 64%. In the northern hinterlands, however, the young accounted for 82% and the elderly for only 18% of the ratio.

Some possible explanations for these dependency ratios are declining birth rates, the aging of the population, and the exodus of young families with children. The out-migration of young families is the most plausible reason for the discrepancies between urban and rural ratios, because growth in the 15-39 age group was low in the rural and remote regions (11.5%) and higher in agglomerated (19.7%) and intermediate (23.5%) regions.

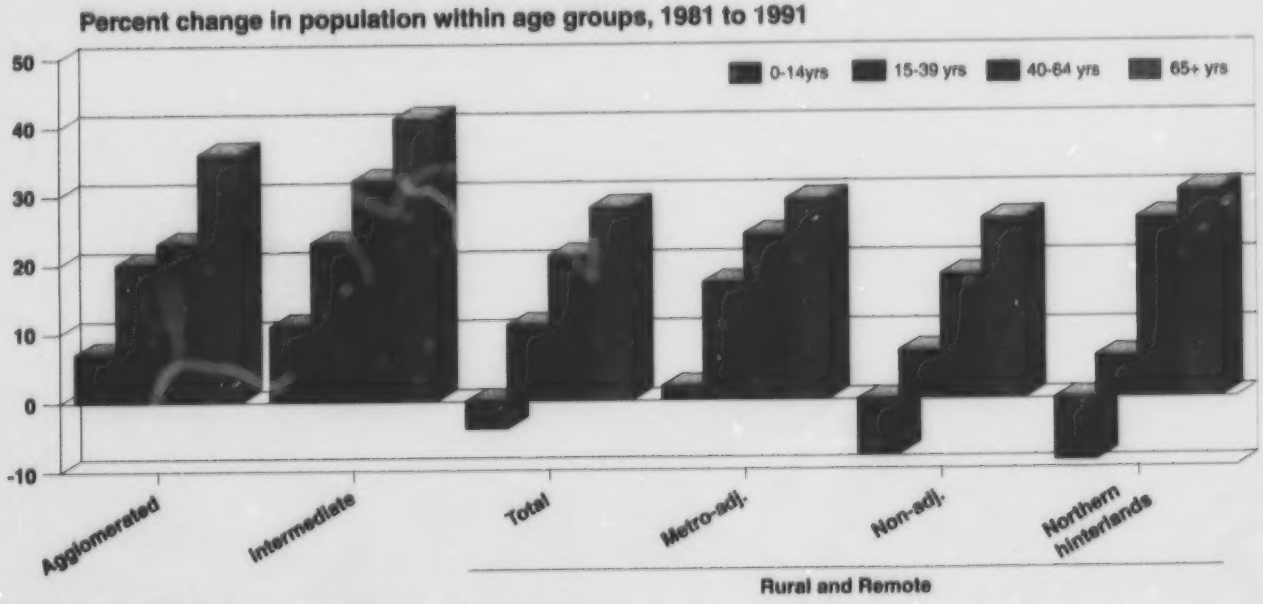
Moreover, in the northern hinterlands the high birth rates and decreased infant mortality in Aboriginal populations to some degree masks significant declines in the non-Aboriginal youth population. For example, there was a 17% increase in the under 15 age group in the Yukon and Northwest Territories.

There was a decline in the numbers of young people (0-14 years) in rural and remote Canada (-4%) between 1981 and 1991. It was particularly pronounced in non-adjacent and northern hinterland sub-regions outside Ontario and British Columbia (Table 4).

Among all the age groups the highest growth rates were among the elderly (Figure 4). This is true in all political-geographic regions of Canada (Table 4). The growth rates in this age group varied between 26% and 41% among the regions. They were highest in intermediate regions and lowest in rural and remote regions. Within rural and remote regions the highest rates were in British Columbia, which does not have an intermediate region as defined by the OECD.

Figure 4

Rural and remote regions have decreasing young populations, Canada 1981-1991



Source: Statistics Canada, Census of Population, 1981 and 1991.

Table 4
Percent change in population in each age group, Canada 1981 to 1991

Region	Percent change in each age class				
	0-14 yrs.	15-39 yrs.	40-64 yrs.	65 yrs.+	Total
Canada					
Agglomerated	7.5	19.7	23.1	35.7	14.3
Intermediate	10.5	23.5	32.1	41.0	18.0
Rural and remote					
Total	-3.6	11.5	21.4	27.7	5.8
Metro-adjacent	2.3	16.8	24.2	29.5	10.5
Non-adjacent	-8.1	7.1	17.7	25.6	2.1
Northern hinterlands	-9.3	6.2	26.3	29.7	0.5
Atlantic region					
Agglomerated	-17.7	5.3	-0.7	16.0	-5.4
Intermediate	0.4	22.4	29.4	34.9	14.0
Rural and remote					
Total	-15.8	14.1	21.3	20.8	2.4
Metro-adjacent	-11.2	15.7	22.7	11.9	4.9
Non-adjacent	-18.6	12.9	19.€	19.3	0.4
Northern hinterlands	-27.1	12.0	35.2	37.1	-2.9
Quebec					
Agglomerated	-2.8	9.7	16.8	33.4	6.4
Intermediate	7.5	13.5	37.2	44.9	14.4
Rural and remote					
Total	-6.6	1.6	24.3	30.1	1.9
Metro-adjacent	2.4	9.8	28.3	27.2	8.6
Non-adjacent	-7.8	-0.1	22.8	30.3	0.8
Northern hinterlands	-18.6	-7.7	21.8	44.1	-8.1
Ontario					
Agglomerated	6.9	25.7	21.1	36.7	16.0
Intermediate	13.4	30.1	31.2	41.4	21.2
Rural and remote					
Total	5.6	20.0	22.4	27.9	12.1
Metro-adjacent	10.2	24.1	25.3	30.0	15.7
Non-adjacent	0.8	14.3	18.7	25.4	7.9
Northern hinterlands	-11.3	7.4	10.1	15.6	-2.3
Prairie region					
Agglomerated	13.6	15.7	31.0	40.0	15.2
Intermediate	10.7	18.7	20.3	30.3	12.7
Rural and remote					
Total	-2.1	11.1	8.8	19.0	2.3
Metro-adjacent	1.5	12.8	13.0	23.1	5.4
Non-adjacent	-6.9	7.3	0.5	14.4	-2.6
Northern hinterlands	-1.1	17.0	36.1	21.5	7.3
British Columbia					
Agglomerated	22.8	32.2	34.0	34.9	25.8
Intermediate	—	—	—	—	—
Rural and remote					
Total	2.7	9.5	32.9	51.7	11.8
Metro-adjacent	9.5	16.8	41.4	60.9	19.4
Non-adjacent	0.1	5.8	26.7	45.6	8.2
Northern hinterlands	-8.3	-0.3	32.3	45.4	-0.1

Source: Statistics Canada, Census of Population, 1981 and 1991.

Table 4
Percent change in population in each age group, Canada
1981 to 1991

Region	Percent change in each age class				
	0-14 yrs.	15-39 yrs.	40-64 yrs.	65 yrs.+	Total
Canada					
Agglomerated	7.5	19.7	23.1	35.7	14.3
Intermediate	10.5	23.5	32.1	41.0	18.0
Rural and remote					
Total	-3.6	11.5	21.4	27.7	5.8
Metro-adjacent	2.3	16.8	24.2	29.5	10.5
Non-adjacent	-8.1	7.1	17.7	25.6	2.1
Northern hinterlands	-9.3	6.2	26.3	29.7	0.5
Atlantic region					
Agglomerated	-17.7	5.3	-0.7	16.0	-5.4
Intermediate	0.4	22.4	29.4	34.9	14.0
Rural and remote					
Total	-15.8	14.1	21.3	20.8	2.4
Metro-adjacent	-11.2	15.7	22.7	11.9	4.9
Non-adjacent	-18.6	12.9	19.6	19.3	0.4
Northern hinterlands	-27.1	12.0	35.2	37.1	-2.9
Quebec					
Agglomerated	-2 8	9.7	16.8	33.4	6.4
Intermediate	7.5	13.5	37.2	44.9	14.4
Rural and remote					
Total	-6.6	1.6	24.3	30.1	1.9
Metro-adjacent	2.4	9.8	28.3	27.2	8.6
Non-adjacent	-7.8	-0.1	22.8	30.3	0.8
Northern hinterlands	-18.6	-7.7	21.8	44.1	-8.1
Ontario					
Agglomerated	6.9	25.7	21.1	36.7	16.0
Intermediate	13.4	30.1	31.2	41.4	21.2
Rural and remote					
Total	5.6	20.0	22.4	27.9	12.1
Metro-adjacent	10.2	24.1	25.3	30.0	15.7
Non-adjacent	0.8	14.3	18.7	25.4	7.9
Northern hinterlands	-11.3	7.4	10.1	15.6	-2.3
Prairie region					
Agglomerated	13.6	15.7	31.0	40.0	15.2
Intermediate	10.7	18.7	20.3	30.3	12.7
Rural and remote					
Total	-2.1	11.1	8.8	19.0	2.3
Metro-adjacent	1.5	12.8	13.0	23.1	5.4
Non-adjacent	-6.9	7.3	0.5	14.4	-2.6
Northern hinterlands	-1.1	17.0	36.1	21.5	7.3
British Columbia					
Agglomerated	22.8	32.2	34.0	34.9	25.8
Intermediate	—	—	—	—	—
Rural and remote					
Total	2.7	9.5	32.9	51.7	11.8
Metro-adjacent	9.5	16.8	41.4	60.9	19.4
Non-adjacent	0.1	5.8	26.7	45.6	8.2
Northern hinterlands	-8.3	-0.3	32.3	45.4	-0.1

Source: Statistics Canada, Census of Population, 1961 and 1991.

Areas near cities are the only rural areas to gain from migration

The population of a region changes as a result of a combination of the natural balance (births minus deaths) and net migration (movement into or out of a region). Migration either enhances or reduces the effects of the natural balance. It may also suggest how real or perceived economic opportunities are distributed across the areas involved.

Between 1981 and 1991 the natural balance was positive everywhere in Canada (Table 5), so if populations declined in any region, sub-region, or political-geographic area, it was because more people moved out than in. In rural and remote regions net migration was negative, which reduced the effects of a positive natural balance (Figure 5). In metro-adjacent sub-regions it was positive, but the increases in Ontario accounted for virtually all of the Canada-wide increase. In non-adjacent and northern hinterlands sub-regions net migration was strongly negative.

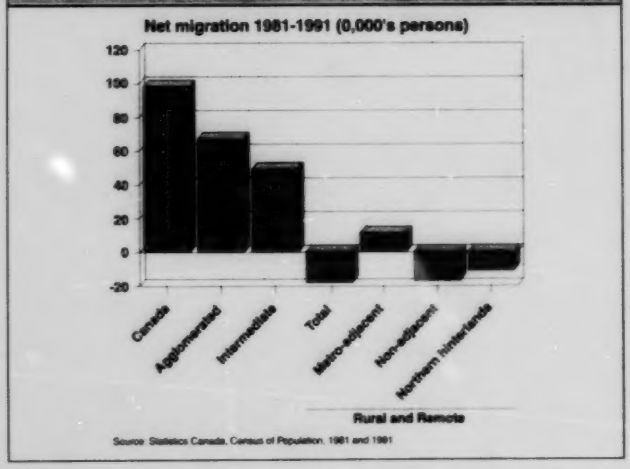
In contrast, agglomerated and intermediate regions experienced population gains through migration. Here, in-migration enhanced a positive natural balance and accounted for a significant part of the population growth (Table 5). This trend was particularly noticeable in intermediate regions.

Canada's population increased by nearly three million between 1981 and 1991 (Table 5). Approximately two-thirds of the increase was attributable to natural balance and one-third to net migration. (The enumeration of nonpermanent residents for the first time in the 1991 Census accounted for approximately 7% of the increase. More than 70% of these nonpermanent residents lived in Toronto, Montreal, and Vancouver, so the totals in agglomerated regions were affected most.)

Among Canada's political-geographic areas, Atlantic Canada and the Prairie provinces lost population through migration between 1981 and 1991 (Table 5). All political-geographic areas, except Ontario and British Columbia, also lost population through migration in rural and remote sub-regions. In the Yukon and the Northwest Territories, net migration was virtually negligible.

In rural and remote regions, there was net out-migration in metro-adjacent sub-regions only in the Atlantic and the Prairie provinces. In non-adjacent sub-regions, populations decreased as a result of migration flows in all political-geographic areas except Ontario, and net

Figure 5
Net migration is negative in rural and remote Canada, 1981–1991

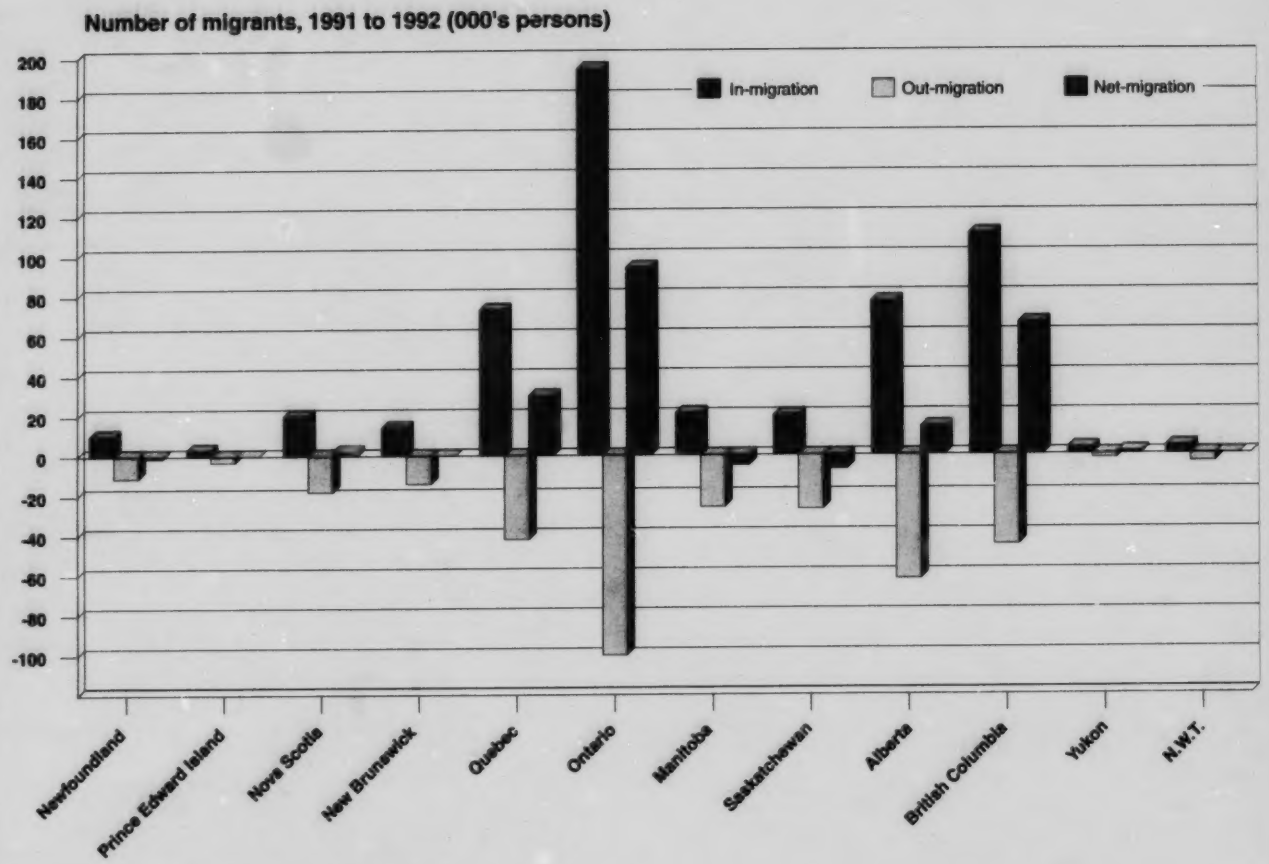


Source: Statistics Canada, Census of Population, 1981 and 1991

migration was negative in the northern hinterlands except for the Yukon and the Northwest Territories.

Since net migration is the balance between in-migration and out-migration, the size of migration flows is hidden. There can be a considerable movement of people with little change in total populations. For example, according to 1991-92 data on provincial migration flows, 20,000 people moved to Nova Scotia while 18,000 left the province (Figure 6). The net gain was therefore only 2,000, although 38,000 people were involved. Even where there were significant net gains, such as in Ontario and British Columbia, total out-migration was considerable. There was considerable migration to and from Alberta in 1991-92 (139,000 people), but a gain of only 14,000 residents.

Figure 6
Provincial migration flows in Canada
1991-1992



Source: Statistics Canada, The Daily, August 5, 1993.

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Table 3
Components of population change in Canada
1981-1991

Jurisdiction Region	Total change 1981-1991	Natural balance (births minus deaths)	Net migration
Canada	2,953,730	1,973,303	980,427
Agglomerated	**1,516,615**	**853,724**	**662,891**
Intermediate	941,390	448,160	493,230
Rural and remote			
Total	495,725	671,419	-175,694
Metro-adjacent	**415,725**	**304,963**	**110,222**
Non-adjacent	73,930	245,455	-171,525
Northern hinterlands	**6,610**	**121,001**	**-114,391**
Atlantic Provinces	88,050	153,680	-65,630
Agglomerated	**-4,685**	**3,851**	**-8,536**
Intermediate	50,835	32,693	18,142
Rural and remote			
Total	41,900	117,136	-75,236
Metro-adjacent	**44,715**	**71,607**	**-26,892**
Non-adjacent	-1,155	38,605	-39,760
Northern hinterlands	**-1,660**	**6,924**	**-8,584**
Quebec	457,570	432,026	25,544
Agglomerated	**199,145**	**178,759**	**20,386**
Intermediate	225,085	126,200	98,885
Rural and remote			
Total	33,340	127,067	-93,727
Metro-adjacent	**43,300**	**34,008**	**9,292**
Non-adjacent	7,820	69,491	-61,671
Northern hinterlands	**-17,780**	**23,568**	**-41,348**
Ontario	1,459,625	678,577	781,048
Agglomerated	**624,145**	**328,836**	**295,309**
Intermediate	615,600	241,917	373,683
Rural and remote			
Total	219,880	107,824	112,056
Metro-adjacent	**185,640**	**67,620**	**118,020**
Non-adjacent	37,875	23,360	14,515
Northern hinterlands	**-3,635**	**16,844**	**-20,479**
Prairie Provinces	394,335	476,576	-82,241
Agglomerated	**302,685**	**240,254**	**62,431**
Intermediate	49,870	47,350	2,520
Rural and remote			
Total	41,780	188,972	-147,192
Metro-adjacent	**50,745**	**89,992**	**-39,247**
Non-adjacent	-22,190	59,303	-81,493
Northern hinterlands	**13,225**	**39,677**	**-26,452**
British Columbia	537,595	215,910	321,685
Agglomerated	**395,325**	**102,024**	**293,301**
Intermediate	n/a	n/a	n/a
Rural and remote			
Total	142,270	113,886	28,384
Metro-adjacent	**90,785**	**41,736**	**49,049**
Non-adjacent	51,580	54,696	-3,116
Northern hinterlands	**-95**	**17,454**	**-17,549**
Yukon/NWT	16,555	16,534	21

Source: Statistics Canada, Census of Population, 1981 and 1991; Statistics Canada, Final inter-censal estimates of population for census divisions and census subdivisions, Demography Division, Ottawa, 1992 and 1993.

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Yukon/NWT	16,555	16,534	21

Source: Statistics Canada, Census of Population, 1981 and 1991. Statistics Canada. Post censal annual estimates of population for census divisions and census metropolitan areas (component method). (Cat. No. 91-212).

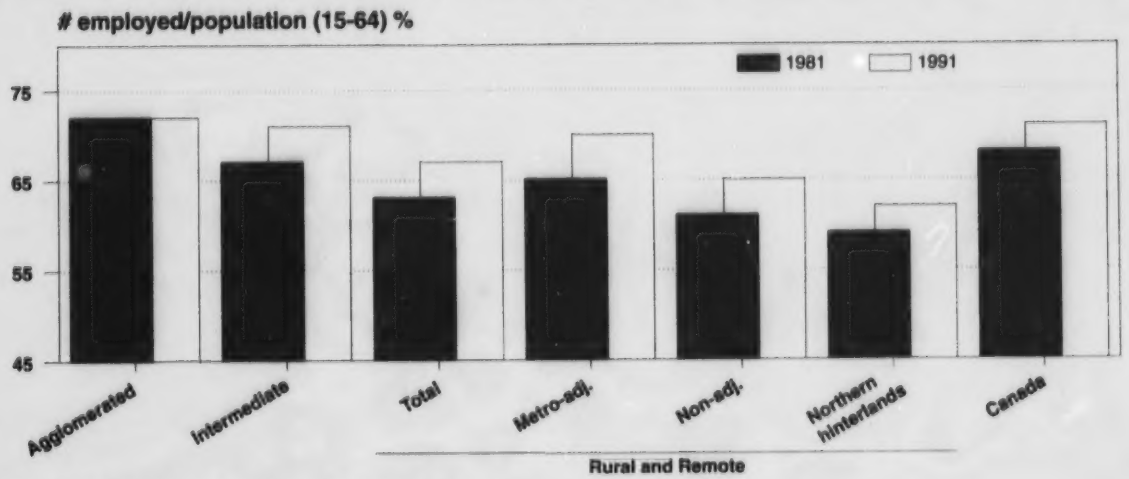
Unemployment rates are higher in non-adjacent and northern hinterlands rural sub-regions

Employment and unemployment rates are typically used to measure the performance of economies both at a given point in time and through time. They are an on-going measure of the performance of the regional economies of Canada.

Employment rates are calculated by dividing the total number of people employed by the total population aged 15-64 years. The numerator includes some people over 65 years who are employed, so the rates reported are slightly higher than they would be if total employment and populations were restricted to the 15-64 age-group.

Employment rates declined with the degree of remoteness (Figure 7). In agglomerated and intermediate regions, more than 70% of working-age people (15-64 years) were employed in 1991. In rural and remote regions a similar percentage was employed in metro-adjacent sub-regions, but in non-adjacent and northern hinterlands sub-regions the rates were lower, at 65% and 62%, respectively. (The 33% of the total working-age population that was not

Figure 7
Employment rates are lowest in rural Canada in 1991



Source: Statistics Canada, Census of Population, 1981 and 1991.

employed in rural and remote Canada could have either been unemployed or not looking for paid work.)

Between 1981 and 1991 the employment rate increased in all areas except agglomerated regions. The Canada-wide employment growth rate was 16% (Figure 8). Although it was 14% in all rural and remote regions, when this figure is broken down it was higher in metro-adjacent sub-regions (18%) and lower in non-adjacent (10%) and northern hinterlands (7%) sub-regions. These lower growth rates, however, were offset to some degree by low growth rates in the working-age populations, especially in more remote rural sub-regions. Similarly, the higher employment growth rates characteristic of metropolitan areas were accompanied by increases in the working-age populations as people gravitate toward areas that are perceived to have better economic opportunities. The two values should be interpreted relative to each other.

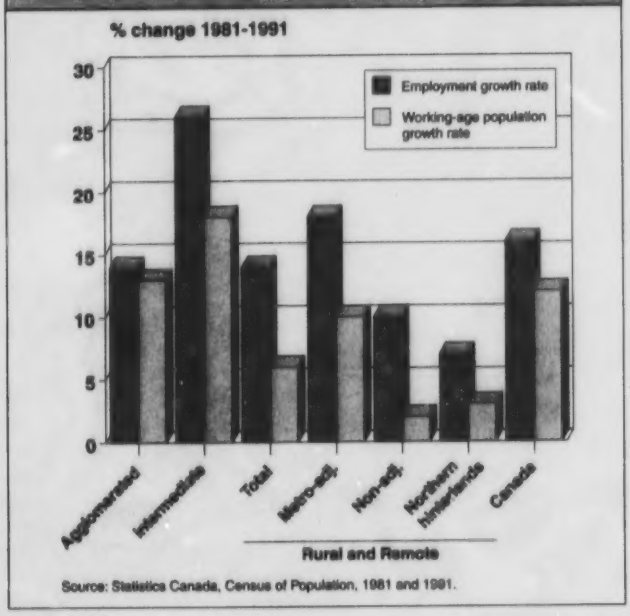
Unemployment rates in 1991 were higher in rural and remote Canada and increased with the degree of remoteness (non-adjacent and northern hinterlands sub-regions had the highest unemployment rates). In metro-adjacent sub-regions the rates were similar to those in agglomerated and intermediate regions (Figure 9).

They increased between 1981 and 1991 in all regions and sub-regions, but the greatest increases were in agglomerated regions and the northern hinterlands.

Unemployment rates fluctuate according to the business cycle. Canada was in a recession at the time of the 1991 Census, but was in the last few months of a growth period preceding the 1981-82 recession when the 1981 Census was conducted. In the 1980s, rural and urban unemployment rates tended to diverge during periods of economic expansion and converge during recession. Consequently, the greater recorded increases in unemployment rates in agglomerated regions in 1981-91 may, in part, have a cyclical component.

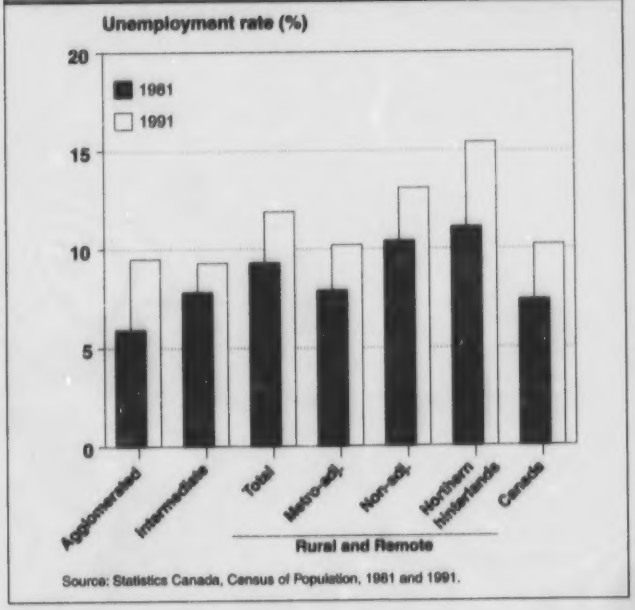
Turning to the political-geographic areas, unemployment rates were higher in 1991 than in 1981 in all but rural and remote Quebec. Over the period the rankings among regional classes changed in most areas. For example, in 1981, unemployment rates in Quebec, Ontario, and the Prairie provinces were lowest in the agglomerated regions, but in 1991 this was no longer true. In the Prairie provinces in 1991 the lowest unemployment rate was in non-adjacent rural sub-regions. The major reason appears to be out-migration of the jobless, as there was an overall decline in the working-age population.

Figure 8
1981-1991 Growth rates in employment exceed those of the working-age populations in all regions of Canada



Source: Statistics Canada, Census of Population, 1981 and 1991.

Figure 9
Unemployment rates in regions of Canada 1981-1991; rates have increased in all regions, but are highest in rural Canada



Source: Statistics Canada, Census of Population, 1981 and 1991.

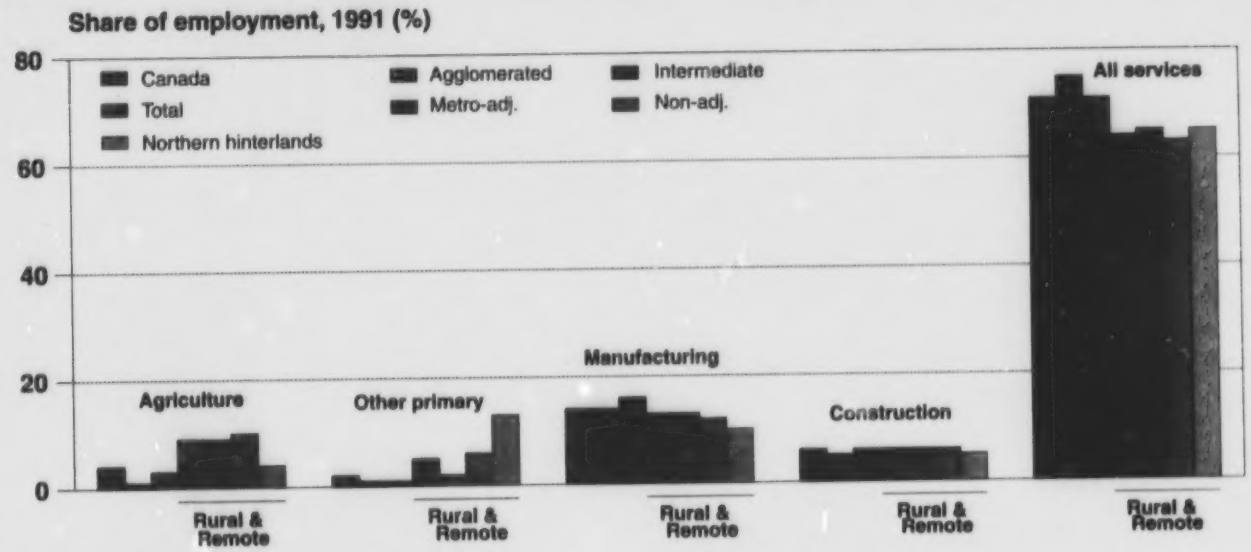
Employment by Industry

Service industries dominate rural employment

Examining employment by industry data gives an indication of the distribution of work force activities. The industry categories used here are agriculture, other primary industries, manufacturing, construction and four categories of services: distributive, producer, personal and social services.[1]

In 1991, 4% of the work force in Canada was employed in agriculture (Figure 10). In rural and remote regions, 9% of the work force was employed in agriculture; the proportions were similar in metro-adjacent and non-adjacent sub-regions. There were few farmers in the northern hinterlands, while

Figure 10
Rural share of employment high in primary industries, lower in manufacturing and services



Source: Statistics Canada, Census of Population, 1991.

1 Distributive services include transportation, communications, utilities, wholesale and retail trade. Producer services include finance, insurance, real estate and business services. Personal services include services associated with accommodation, food, entertainment and recreation. Social services include public administration, education, professional services, health and welfare and defence.

in agglomerated and intermediate regions only 1% and 3% of the work force, respectively, was in agriculture.

Other primary industries (e.g., fishing, forestry, mining) employed only 1% of Canada's work force. While they were insignificant in agglomerated regions, they accounted for 5% of employment in rural and remote regions. They were most significant in the northern hinterlands, accounting for 13% of the work force (Figure 10).

The proportions employed in the manufacturing and construction industries were reasonably consistent among regions, ranging from 10% to 16% and 5% to 6%, respectively. In Canada as a whole, manufacturing accounted for 14% and construction for 6% of the work force.

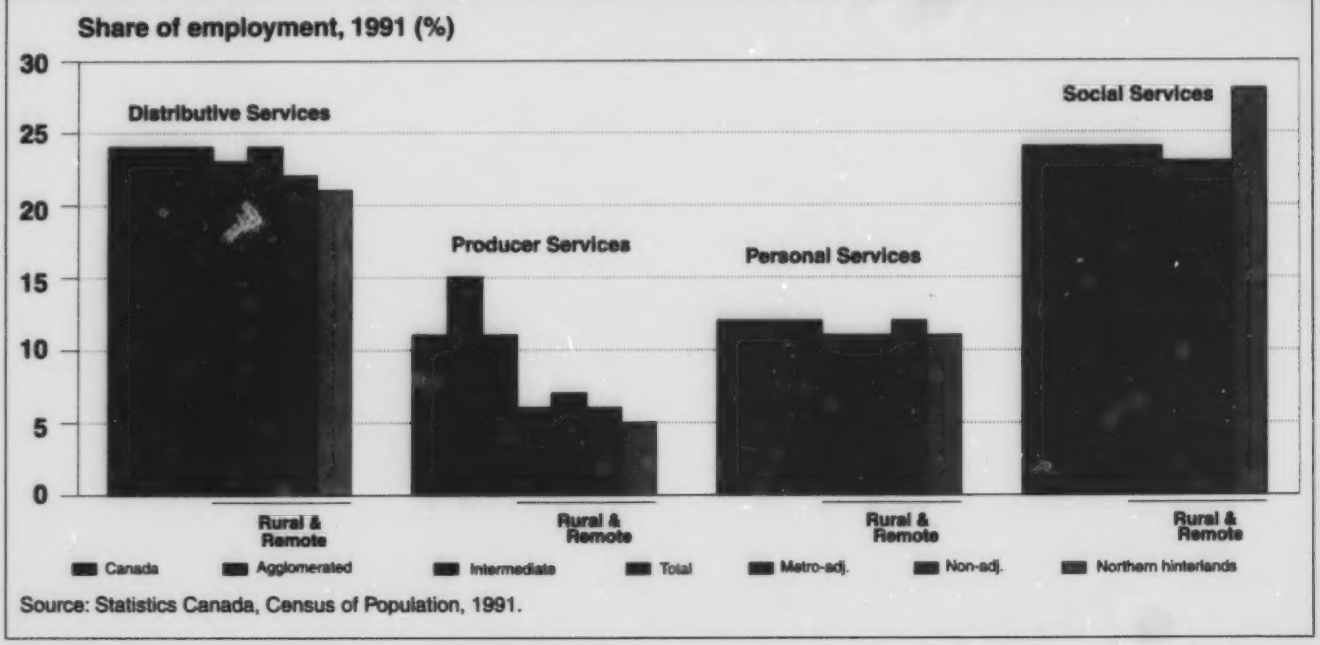
Among the service industries, in 1991 distributive services consistently accounted for 21-24% of employment among all regions and rural sub-regions (Figure 11). Producer services accounted for 11% of Canada's employment, but were concentrated in agglomerated and intermediate regions. The proportion of the work force in producer services in rural and remote regions was only one-third to one-half that in other regions. (Many of the high-wage, high-skill jobs in the service sector are in producer services.)

Personal and social services were about equally important across the country, at around 12% and 24%, respectively. The highest proportion of social service employment was in the northern hinterlands. This geographical equity in the shares of personal and social service employment, however, does not necessarily mean that the types of services provided or the skills and incomes of people employed in them were similar across regions.

Employment growth rates varied greatly among industries between 1981 and 1991 (Figure 12). In agriculture they were minor in all but agglomerated regions and northern hinterlands sub-regions, both of which started from a small base in 1981. In agglomerated regions most of the growth was in census divisions near Toronto, Montreal, and Vancouver, suggesting that the increase was related to hobby farms and labour-intensive greenhouse agriculture.

In other primary industries and manufacturing, employment declined in all regions (Figure 12). In the former it declined by -9 % across Canada, with great declines in intermediate regions and the northern hinterlands. Manufacturing employment declined between -7% and -19% among the regions and rural sub-regions, with a national loss of -12%.

Figure 11
Rural share of employment in services, low only in producer services



Source: Statistics Canada, Census of Population, 1991.

Construction employment increased by 9% Canada-wide. The greatest growth occurred in intermediate regions and in metro-adjacent sub-regions. It did not increase in non-adjacent regions.

The growth in service industry employment contrasts sharply with all other categories. Overall, employment in service industries increased by 26% between 1981 and 1991. In intermediate regions the increase was 38%, and in metro-adjacent sub-regions it was 30%. While employment growth rates in this category were substantial in non-adjacent and northern hinterlands sub-regions, they were lower than elsewhere.

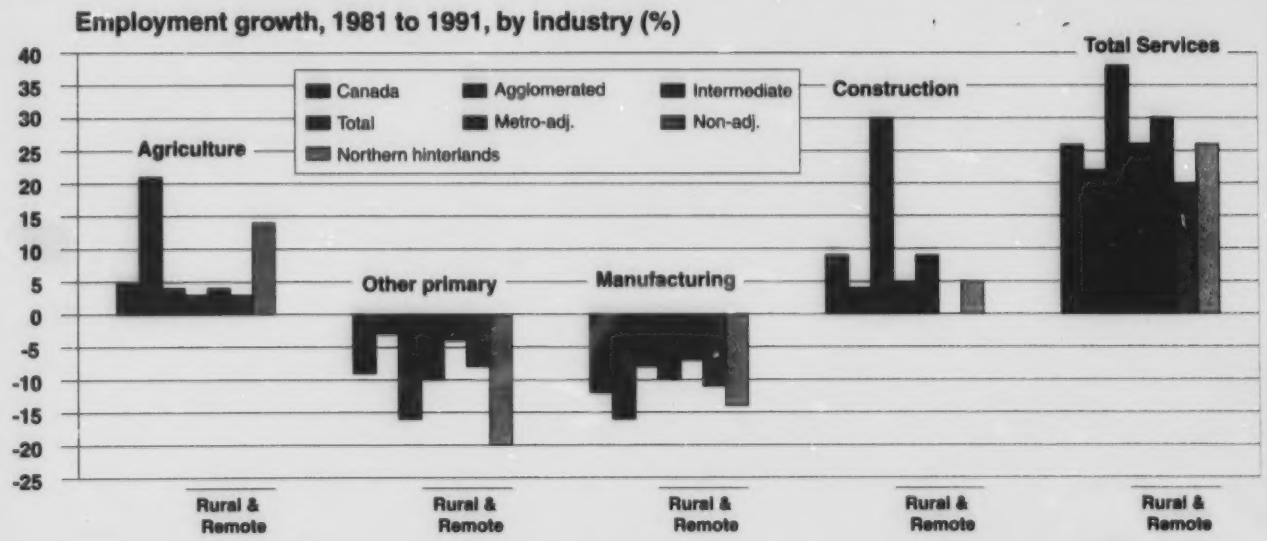
Among the political-geographic regions, agricultural employment constituted 10% of all employment in the Prairies and ranged from 2% to 3% in all other regions except the Yukon and Northwest Territories, where it was negligible (Table 6). Other primary industries employed between 3% and 6% of the work force in Atlantic Canada, the Prairie provinces, British Columbia, and the Yukon and the Northwest Territories. Manufacturing employment was highest in Quebec and Ontario and lowest in the Yukon and Northwest Territories. The shares of construction employment were similar among the political-geographic areas.

All service industries combined were by far the largest employers in all areas of Canada (Table 6). They accounted for between 70% and 73% of employment in all areas except the Yukon and Northwest Territories, where they employed 81% of the work force.

Two patterns of employment distribution emerge when services are separated into the four categories (Table 6). First, the shares of distributive and personal services were relatively uniform among political-geographic areas, at approximately 24% and 12% of the work force, respectively. Second, producer and social services were not distributed evenly. The proportions of producer services in the Atlantic provinces and the Yukon and Northwest Territories were noticeably lower, while those of social services were higher.

Employment growth by industry varied widely between 1981 and 1991 (Table 6). In agriculture it increased moderately in the Atlantic provinces, Quebec, and the Prairies; it decreased in Ontario; and it increased greatly in British Columbia and the Yukon and Northwest Territories. In other primary industries employment growth decreased considerably in all areas except the Prairies; the decrease was particularly high in Quebec, Ontario, and the Yukon and Northwest Territories.

Figure 12
Employment growth rates strongest in service industries



Source: Statistics Canada, Census of Population, 1981 and 1991.

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Manufacturing employment declined in five of the six political-geographic areas. The greatest decline occurred in Ontario and Quebec. Only in the Yukon and Northwest Territories did it increase. Changes in construction employment, however, varied widely. It increased notably in Quebec, Ontario, and the Yukon and Northwest Territories, while in the Prairies it declined.

Employment in the service industries increased by more than 20% in all the political-geographical areas except the Prairies. The greatest increase was in the Yukon and Northwest Territories (44%), where social services grew at the fastest rate (55%) over the 10-year period.

Table 6
Share of employment and employment growth by industry, by geographic area

Area	Industry							
	Agriculture	Other primary	Manufacturing	Construction	Distributive services	Producer services	Personal services	Social services
Share of employment 1991 (%)								
Atlantic	2	5	12	5	25	7	11	30
Quebec	2	1	17	5	24	11	12	24
Ontario	3	1	17	6	23	13	11	23
Prairies	10	4	8	6	24	10	12	24
British Columbia	2	3	11	7	25	12	14	22
Territories	0	6	2	7	23	6	11	41
Employment growth 1981 to 1991 (%)								
Atlantic	8	-11	-11	2	10	31	34	25
Quebec	8	-16	-12	26	13	43	28	21
Ontario	-3	-20	-14	27	17	53	32	36
Prairies	7	0	-7	-24	6	19	39	29
British Columbia	20	-7	-8	7	16	44	51	30
Territories	56	-31	7	62	29	40	44	55

Source: Statistics Canada, Census of Population, 1981 and 1991.
Note: Each cell is the average for 100 locations of growth in employment industries.

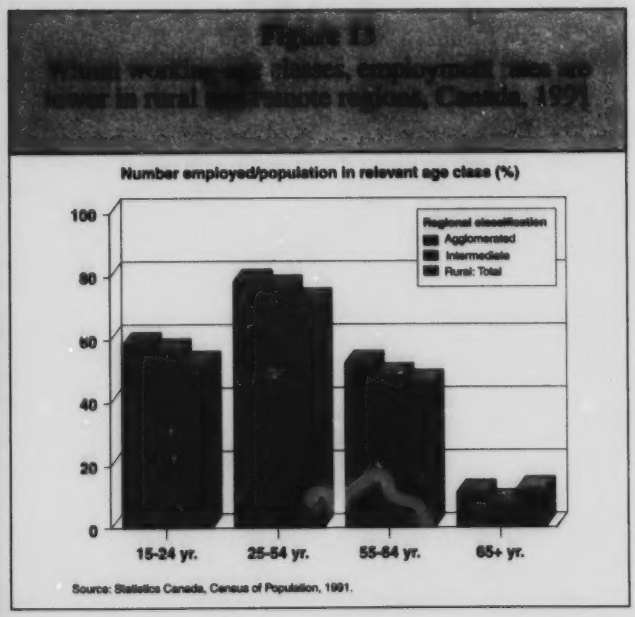
Employment rates in rural regions are lower in each age group

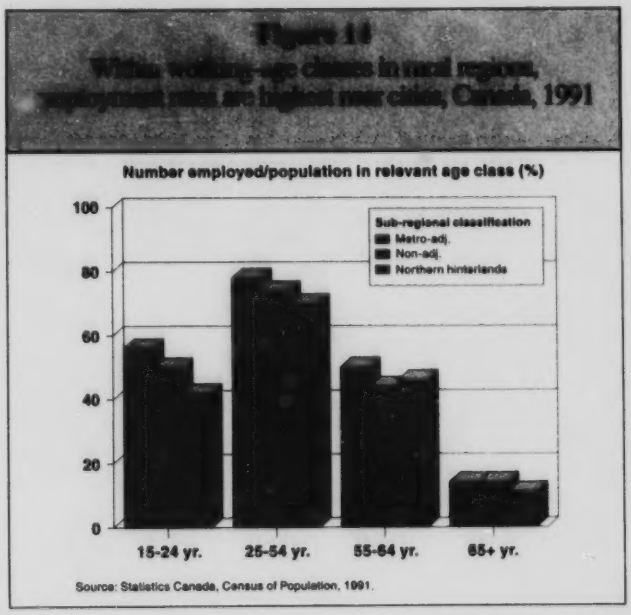
Although overall employment rates provide a benchmark for the Canadian economy, they may hide important aspects of employment within subgroups of the population. Here, employment rates are examined by age to reveal the degrees of attachment to the labour market of the different age groups. The age groups considered here are young adults entering the job market (15-24 years), middle-aged people (25-54 years), older people (55-64 years), and seniors (65 years and over). There are challenges for people in all age groups who wish to enter, move within, or leave the work force.

In 1991 employment rates were highest in all regions and rural sub-regions in the 25-54 age group (Figures 13 and 14). Values for the three regions ranged between 75% and 79% in 1991, and these rates were 2-5 percentage points higher than those in 1981. In both years, the lowest values for this age group were in rural and remote Canada.

Of the 65 years and over age group, only 7-10% were employed (Figures 13 and 14, and Table 7). Most people in this age group are retired, rather than unemployed.

There was wide regional diversity in employment rates among young people (15-24 years). This group contains many students, which tends to lower the employment rate. Only 57% were employed Canada-wide in 1981, and the rate had dropped 1 percentage point by 1991. In 1991, the rates among this age group in agglomerated regions were 7 percentage points higher than they were in rural and





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British Columbia	20	-7	-8	7	16	44	51	30
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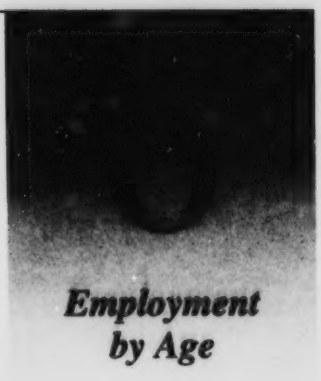
Source: Statistics Canada, Census of Population, 1981 and 1991.
Note: Row totals may not add up to 100 because of growth in unclassified industries.



Employment rates in rural regions are lower in each age group

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Figure 13
Within working-age classes, employment rates are lower in rural and remote regions, Canada, 1991

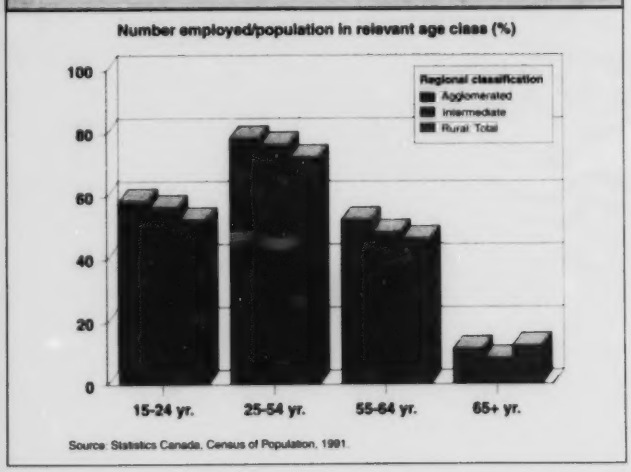
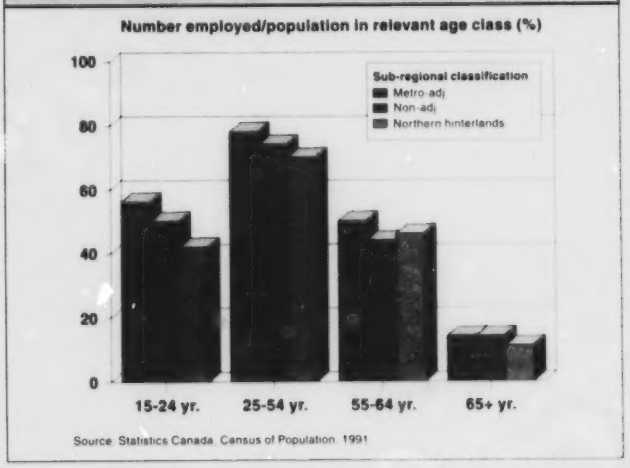


Figure 14
Within working-age classes in rural regions, employment rates are highest near cities, Canada, 1991

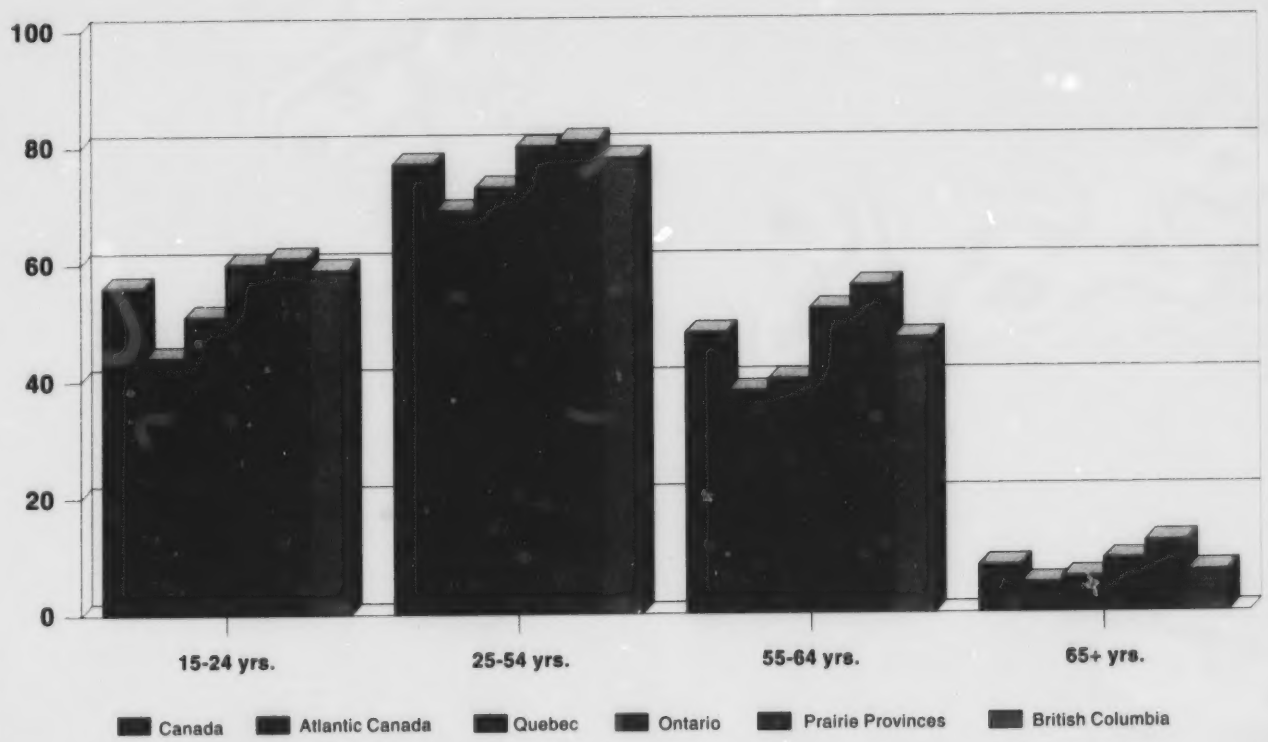


remote regions (Figure 13). Within rural and remote Canada the rates were lower in more remote areas (Figure 14). In the northern hinterlands only 43% of this age group had jobs.

A similar pattern is evident among people aged 55-64 years. Their regional employment rates were lower in more rural regions (Figure 13), but there was not a marked difference among the rural sub-regions (Figure 14). The rates declined consistently in this age group between 1981 and 1991.

Looking at political-geographic areas, employment rates were lowest in Atlantic Canada in all age groups and highest in the Prairie provinces in 1991 (Figure 15). The high employment rates in the Prairie provinces — especially in non-adjacent rural sub-regions (Table 7) — were in part due to the out-migration of the jobless. In the agricultural Prairies, out-migration of the jobless was increased by the fact that farmers are one of the few groups for whom losing their farms and/or businesses often requires them to relocate their residences. In spite of the high employment rate, the rural Prairies did not attract large numbers of job-seekers from elsewhere.

Figure 15
Employment rates by age class for geographic areas of Canada, 1991



Source: Statistics Canada, Census of Population, 1991.

Table 7
Regional employment rates by age class in Canada, 1981 and 1991

Geographic area	1981					1991				
Region	15-24	25-54	55-64	65+	Total[1]	15-24	25-54	55-64	65+	Total[1]
Canada	0.57	0.74	0.52	0.10	0.68	0.56	0.77	0.48	0.08	0.71
Agglomerated	0.62	0.77	0.56	0.10	0.72	0.59	0.79	0.50	0.08	0.72
Intermediate	0.55	0.73	0.52	0.09	0.67	0.58	0.78	0.47	0.07	0.71
Rural & Remote	0.51	0.70	0.47	0.10	0.63	0.52	0.75	0.45	0.09	0.67
R&R: metro-adjacent	0.54	0.72	0.49	0.10	0.65	0.56	0.77	0.47	0.09	0.70
R&R: non-adjacent	0.49	0.68	0.46	0.09	0.61	0.50	0.73	0.43	0.09	0.65
R&R: northern hinterlands	0.46	0.67	0.48	0.09	0.59	0.43	0.70	0.45	0.07	0.62
Atlantic Canada	0.46	0.66	0.43	0.08	0.58	0.44	0.69	0.38	0.05	0.61
Agglomerated	0.54	0.69	0.51	0.11	0.64	0.52	0.73	0.42	0.05	0.65
Intermediate	0.58	0.74	0.52	0.09	0.68	0.59	0.78	0.47	0.06	0.71
Rural & Remote	0.41	0.61	0.40	0.07	0.53	0.39	0.64	0.35	0.05	0.55
R&R: metro-adjacent	0.44	0.66	0.43	0.07	0.57	0.43	0.69	0.37	0.04	0.60
R&R: non-adjacent	0.41	0.63	0.40	0.07	0.54	0.39	0.65	0.36	0.05	0.56
R&R: northern hinterlands	0.40	0.65	0.44	0.07	0.55	0.29	0.60	0.37	0.04	0.50
Quebec	0.49	0.68	0.46	0.08	0.61	0.51	0.73	0.40	0.06	0.65
Agglomerated	0.53	0.71	0.50	0.10	0.65	0.54	0.75	0.44	0.07	0.68
Intermediate	0.47	0.67	0.43	0.08	0.59	0.51	0.73	0.37	0.05	0.65
Rural & Remote	0.43	0.63	0.40	0.07	0.55	0.46	0.70	0.36	0.06	0.62
R&R: metro-adjacent	0.46	0.67	0.43	0.09	0.59	0.51	0.74	0.38	0.07	0.66
R&R: non-adjacent	0.43	0.62	0.39	0.06	0.54	0.45	0.69	0.34	0.05	0.60
R&R: northern hinterlands	0.37	0.59	0.40	0.07	0.51	0.37	0.66	0.38	0.06	0.57
Ontario	0.60	0.78	0.57	0.10	0.72	0.60	0.80	0.52	0.09	0.74
Agglomerated	0.63	0.81	0.62	0.12	0.75	0.58	0.80	0.55	0.10	0.74
Intermediate	0.59	0.76	0.54	0.09	0.70	0.61	0.80	0.51	0.08	0.74
Rural & Remote	0.56	0.75	0.50	0.10	0.68	0.61	0.79	0.47	0.09	0.73
R&R: metro-adjacent	0.58	0.76	0.51	0.10	0.69	0.62	0.80	0.48	0.10	0.74
R&R: non-adjacent	0.54	0.74	0.49	0.10	0.67	0.61	0.78	0.45	0.09	0.72
R&R: nothern hinterlands	0.52	0.71	0.51	0.08	0.63	0.53	0.74	0.43	0.05	0.66
Prairies	0.65	0.78	0.58	0.13	0.73	0.61	0.81	0.56	0.12	0.76
Agglomerated	0.71	0.80	0.60	0.11	0.76	0.62	0.81	0.53	0.08	0.75
Intermediate	0.65	0.78	0.59	0.12	0.73	0.60	0.82	0.55	0.12	0.76
Rural & Remote	0.59	0.75	0.56	0.14	0.70	0.58	0.81	0.60	0.16	0.77
R&R: metro-adjacent	0.62	0.76	0.57	0.14	0.71	0.62	0.82	0.59	0.16	0.78
R&R: non-adjacent	0.57	0.75	0.57	0.14	0.70	0.60	0.83	0.62	0.18	0.79
R&R: nothern hinterlands	0.48	0.69	0.49	0.11	0.61	0.38	0.70	0.47	0.09	0.60
British Columbia	0.62	0.76	0.51	0.08	0.70	0.59	0.78	0.47	0.07	0.71
Agglomerated	0.66	0.78	0.54	0.08	0.73	0.62	0.80	0.50	0.07	0.73
Intermediate	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Rural & Remote	0.57	0.72	0.47	0.08	0.66	0.55	0.75	0.44	0.07	0.68
R&R: metro-adjacent	0.59	0.73	0.46	0.07	0.66	0.56	0.76	0.43	0.06	0.68
R&R: non-adjacent	0.57	0.72	0.46	0.08	0.66	0.56	0.75	0.43	0.07	0.68
R&R: northern hinterlands	0.53	0.73	0.57	0.12	0.66	0.50	0.74	0.55	0.12	0.67
Yukon/NWT	0.52	0.73	0.56	0.11	0.66	0.48	0.78	0.55	0.12	0.69

[1] Total=total employed/population aged 15-64 years
Source: Statistics Canada, Census of Population, 1981 and 1991.

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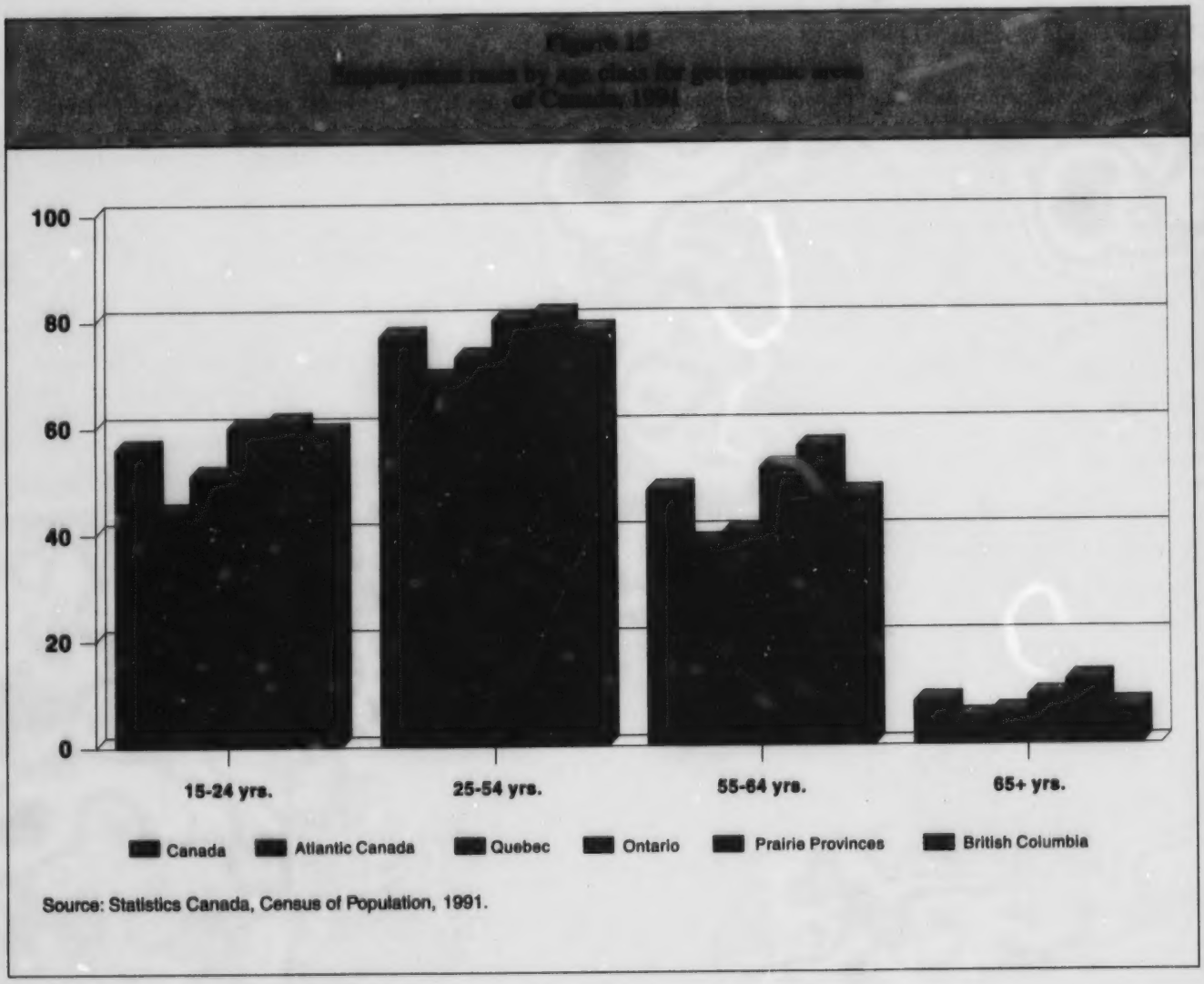

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Intermediate	0.55	0.73	0.52	0.09	0.67	0.58	0.78	0.47	0.07	0.71
Rural & Remote	0.51	0.70	0.47	0.10	0.63	0.52	0.75	0.45	0.09	0.67
R&R: metro-adjacent	0.54	0.72	0.49	0.10	0.65	0.56	0.77	0.47	0.09	0.70
R&R: non-adjacent	0.49	0.68	0.46	0.09	0.61	0.50	0.73	0.43	0.09	0.65
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Agglomerated	0.54	0.69	0.51	0.11	0.64	0.52	0.73	0.42	0.05	0.65
Intermediate	0.58	0.74	0.52	0.09	0.68	0.59	0.78	0.47	0.06	0.71
Rural & Remote	0.41	0.61	0.40	0.07	0.53	0.39	0.64	0.35	0.05	0.55
R&R: metro-adjacent	0.44	0.66	0.43	0.07	0.57	0.43	0.69	0.37	0.04	0.60
R&R: non-adjacent	0.41	0.63	0.40	0.07	0.54	0.39	0.65	0.36	0.05	0.58
R&R: northern hinterlands	0.40	0.65	0.44	0.07	0.55	0.29	0.60	0.37	0.04	0.50
Quebec	0.49	0.66	0.46	0.08	0.61	0.51	0.73	0.40	0.06	0.65
Agglomerated	0.53	0.71	0.50	0.10	0.65	0.54	0.75	0.44	0.07	0.68
Intermediate	0.47	0.67	0.43	0.08	0.59	0.51	0.73	0.37	0.05	0.65
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R&R: non-adjacent	0.54	0.74	0.49	0.10	0.67	0.61	0.78	0.45	0.09	0.72
R&R: nothern hinterlands	0.52	0.71	0.51	0.08	0.63	0.53	0.74	0.43	0.05	0.66
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Agglomerated	0.71	0.80	0.60	0.11	0.76	0.62	0.81	0.53	0.08	0.75
Intermediate	0.65	0.78	0.59	0.12	0.73	0.60	0.82	0.55	0.12	0.76
Rural & Remote	0.59	0.75	0.56	0.14	0.70	0.58	0.81	0.60	0.16	0.77
R&R: metro-adjacent	0.62	0.76	0.57	0.14	0.71	0.62	0.82	0.59	0.16	0.78
R&R: non-adjacent	0.57	0.75	0.57	0.14	0.70	0.60	0.83	0.62	0.18	0.79
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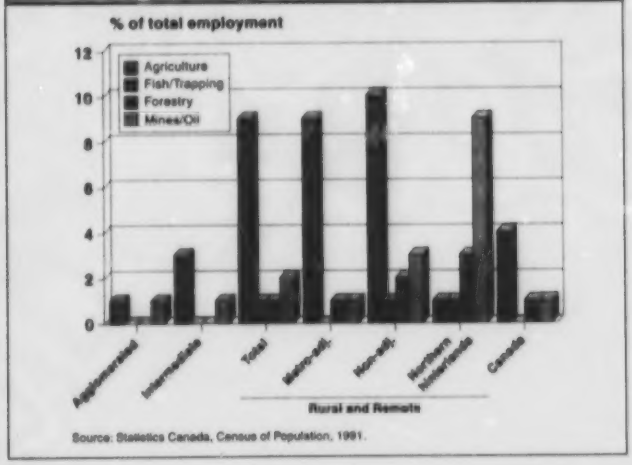
Agriculture dominates primary industry employment in rural Canada, but mines and oil dominate the North

Primary industries (i.e., resource-based industries) are concentrated in rural and remote Canada, but their importance in providing direct employment is declining. In 1991, 68% of the employment in primary industries was in rural and remote Canada, but it accounted for only 13% of total employment there (Figure 16).

The importance of the primary industries in Canada is in wealth creation rather than direct employment. Over the past 50 years the output per worker has increased with technological advances, and labour requirements have subsequently declined. Also, as some tasks have been contracted out (e.g., corporate legal work and janitorial services), work that was previously done within the primary industries has been reclassified. Thus the decline in direct employment associated with primary industries may be smaller than indicated by the figures. As well, during the 1980s weak commodity prices and increased foreign competition created economic difficulties in the primary industries, and jobs were lost as a result.

Figure 16
Employment by primary industry, 1991



Source: Statistics Canada, Census of Population, 1991.

Nevertheless, many rural and remote regions in Canada remain dependent on resource extraction. In fact, these are the only regions in which changes in primary industry employment had any impact on total employment. While in agglomerated and intermediate regions agriculture, forestry, and mining and oil accounted for 2-4% of employment in 1991, in rural and remote regions agriculture alone accounted for 9% of the total, and forestry, fishing and trapping, and mining and oil accounted for an additional 1-2% each (Figure 16). Employment in primary industries was highest in non-adjacent rural sub-regions (16%), and in the northern hinterlands mining and oil was particularly important.

Agriculture accounted for about two-thirds of all primary industry employment in Canada and, not surprisingly, was most significant in the Prairie provinces (Figure 17). Forestry accounted for about 1% of employment in all areas except Ontario and the Prairie provinces. Fishing and trapping were most important in the Atlantic provinces and the Yukon and Northwest Territories. Although present in every geographic area, employment in mines and oil was most important in the Prairies and the Yukon and Northwest Territories.

When one looks at the sub-regions of rural and remote Canada (Figure 18) a different picture emerges. In 1991 in all but the northern hinterlands, agriculture accounted for 2-4% of rural and remote employment in the Atlantic provinces and British Columbia, 7-8% in Quebec and

Ontario, and 19-26% in the Prairie provinces. In the northern hinterlands it played only a minor role. Forestry accounted for less than 5% of employment in almost all political-geographic areas and rural sub-regions. The exception is British Columbia, where employment in forestry was 5% in non-adjacent sub-regions and 7% in the northern hinterlands. Fishing and trapping was insignificant in all political-geographic areas except the Atlantic provinces, where it accounted for 2-8% of employment.

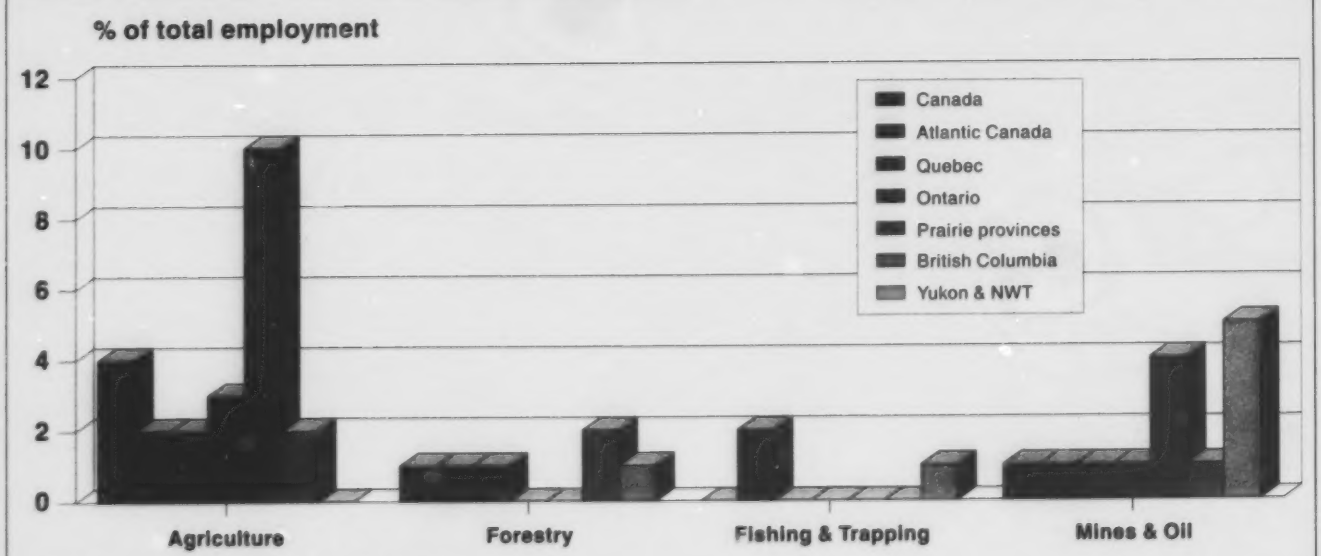
Although mines and oil accounted for only 2% of all employment in rural and remote Canada overall, it accounted for 7-14% of employment in the northern hinterlands of the Atlantic provinces, Quebec, and Ontario, and 21% in the northern Prairies (Figure 18).

Overall, employment in primary industries declined in some component industries, most regions and rural sub-regions, and most political-geographic areas between 1981 and 1991 (Table 8). In agriculture and fishing and trapping it increased, but in forestry and mines and oil it decreased. The net result was a 1% decline in primary industry employment overall. It declined in 7 and increased in 5 of the 12 regions across Canada. In intermediate regions the decline was greatest in fishing and trapping and mines and oil. In all the rural and remote sub-regions there was a significant decline in mines and oil; in non-adjacent sub-regions there was also a significant decline in forestry, and in the northern hinterlands all primary industries except agriculture declined.

Atlantic Canada was impacted by employment losses in forestry, and both it and Quebec lost substantial employment in mines and oil. In Ontario the largest proportions of jobs lost were in fishing and trapping and mines and oil. The Prairies, however, lost moderatcly in fishing and trapping but gained in forestry employment. In British Columbia jobs were gained in agriculture and fishing and trapping, but there were substantial losses in mines and oil employment.

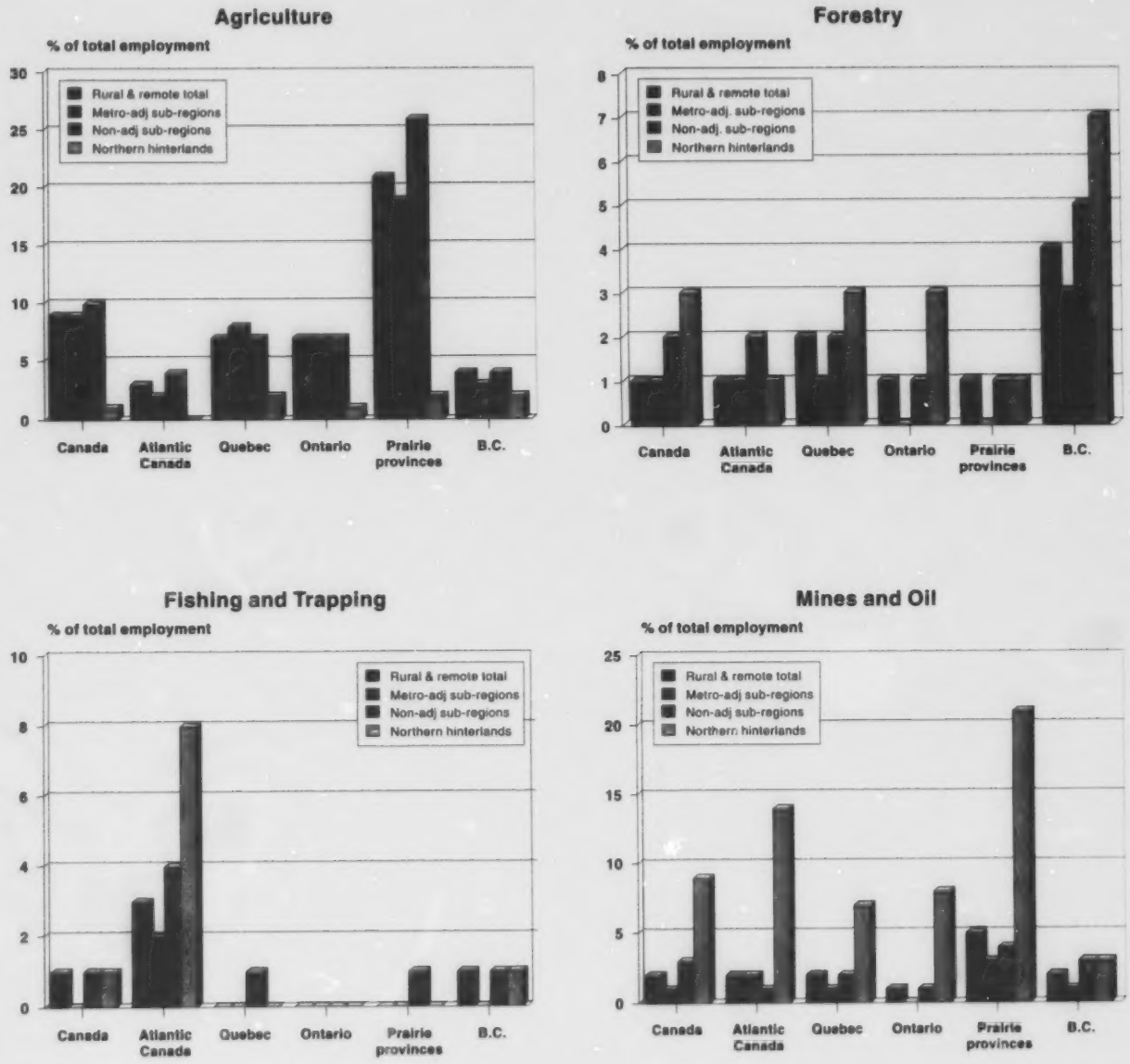
In the Yukon and Northwest Territories, substantial employment was lost in primary industries between 1981 and 1991 (-29%). Here, although there were large percentage increases in jobs in agriculture, forestry, and fishing and trapping, these were offset by a significant drop in mines and oil employment.

Figure 17
Employment by primary industry by geographic area, 1991



Source: Statistics Canada, Census of Population, 1991.

Figure 18
Employment in primary industries in rural and remote regions across Canada, 1991



Source: Statistics Canada, Census of Population, 1991.

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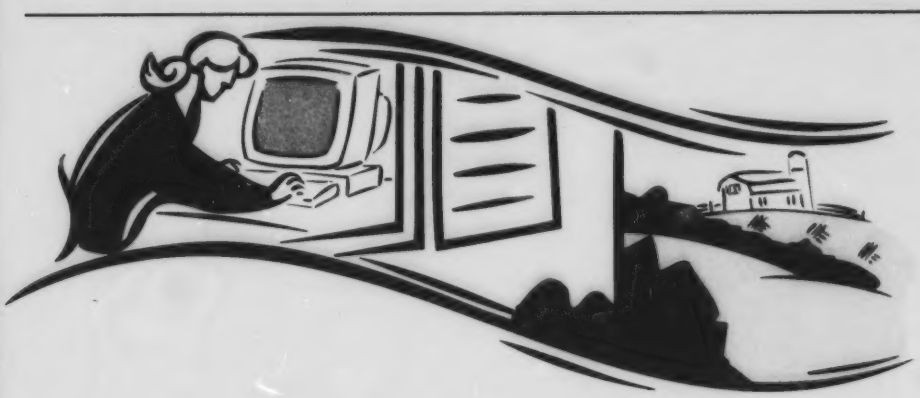
Table 8
Employment change varies widely in primary industries, 1981-1991

Jurisdiction Region/sub-region	Primary industries				
	Agriculture % change	Forestry % change	Fishing/Trapping % change	Mines/Oils % change	Total % change
Canada					
Agglomerated	21	30	-5	-7	-7
Intermediate	4	-5	-19	-19	-3
Rural and remote					
Total	3	-8	9	-15	-2
Metro-adjacent	4	6	11	-13	2
Non-adjacent	3	-13	15	-11	-1
Northern hinterlands	14	-11	-13	-23	-17
Canada total	5	-4	6	-14	-1
Atlantic Canada					
Agglomerated	42	-11	40	29	14
Intermediate	16	-16	-13	-18	-6
Rural and remote					
Total	7	-24	6	-24	-6
Metro-adjacent	21	-6	6	-17	1
Non-adjacent	1	-33	9	-30	-7
Northern hinterlands	n/a	57	-15	-27	-22
Atlantic total	8	-23	5	-24	-6
Quebec					
Agglomerated	28	147	333	-13	30
Intermediate	12	-14	186	15	9
Rural and remote					
Total	4	-12	54	-31	-7
Metro-adjacent	3	15	n/a	-43	-1
Non-adjacent	6	-15	78	-22	-4
Northern hinterlands	1	-17	0	-40	-29
Quebec total	8	-7	64	-27	-1
Ontario					
Agglomerated	14	363	-45	-23	11
Intermediate	0	-2	-37	-23	-7
Rural and remote					
Total	-9	-24	-36	-25	-13
Metro-adjacent	-9	-4	-21	-19	-10
Non-adjacent	-10	-32	-64	-35	-16
Northern hinterlands	43	-29	-53	-21	-21
Ontario total	-3	-5	-38	-24	-8
Prairie Provinces					
Agglomerated	20	86	-15	-5	4
Intermediate	5	n/a	n/a	-14	3
Rural and remote					
Total	6	9	-14	4	6
Metro-adjacent	9	42	129	1	9
Non-adjacent	3	1	-8	8	4
Northern hinterlands	-2	-19	-22	2	-1
Prairie total	7	27	-11	-1	5
British Columbia					
Agglomerated	29	-13	-6	-22	6
Intermediate	n/a	n/a	n/a	n/a	n/a
Rural and remote					
Total	16	2	24	-20	1
Metro-adjacent	19	5	42	-33	4
Non-adjacent	13	0	30	-9	2
Northern hinterlands	38	7	-18	-50	-13
B.C. total	20	0	9	-21	2
Yukon/N.W.T.					
Total	56	74	29	-39	-29

Source: Statistics Canada, Census of Population, 1981 and 1991.

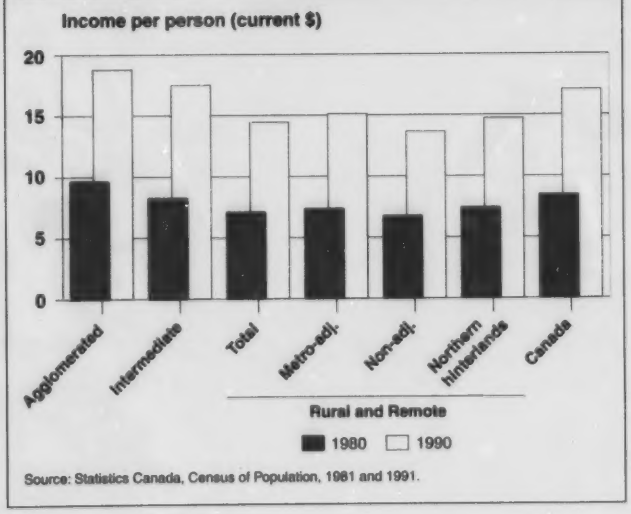


Per capita income is lower in rural Canada

Per capita income is often used as a comparative measure of the economic well-being of a population. The relationship between per capita income and well-being, however, does not take into account the differences in cost of living, wealth, income-in-kind, income from the underground economy, or the distribution of income and wealth within a region. It is therefore only an approximate measure.

The average annual per capita income in Canada increased from $8,438 in 1980 to $17,080 in 1990 (Figure 19). These averages are derived from a total income of $205 billion in 1980 (in 1980 dollars) and $466 billion in 1990 (in 1990 dollars).

Figure 19
Per capita income lower in rural Canada and lowest in non-adjacent sub-regions



Source: Statistics Canada, Census of Population, 1981 and 1991.

Per capita incomes were highest in agglomerated regions, where they were approximately $1,800 above the national average in 1990. In intermediate regions, they were $400 above the Canadian average in 1990. In rural and remote regions they were over $2,600 less than the national average in 1990. Within rural Canada they were lowest in non-adjacent and highest in metro-adjacent sub-regions.

In all political-geographic areas of Canada except in the Atlantic provinces, the highest per capita incomes were in agglomerated regions; this was followed by intermediate regions. The highest incomes in all regional classifications were in Ontario (Table 9).

Within rural and remote Canada, the highest average per capita incomes in all political-geographic areas were in metro-adjacent sub-regions. They were typically higher in the northern hinterlands than in non-adjacent sub-regions. The income gap between rural and remote and agglomerated regions was more than $4,000 per person nationally. This gap was relatively consistent among political-geographic areas, although the absolute incomes varied.

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Agglomerated	21	30	-5	-7	-7
Intermediate	4	-5	-19	-19	-3
Rural and remote					
Total	3	-8	9	-15	-2
Metro-adjacent	4	6	11	-13	2
Non-adjacent	3	-13	15	-11	-1
Northern hinterlands	14	-11	-13	-23	-17
Canada total	5	-4	6	-14	-1
Atlantic Canada					
Agglomerated	42	-11	40	29	14
Intermediate	16	-16	-13	-18	-6
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Northern hinterlands	-2	-19	-22	2	-1
Prairie total	7	27	-11	-1	5
British Columbia					
Agglomerated	29	-13	-6	-22	6
Intermediate	n/a	n/a	n/a	n/a	n/a
Rural and remote					
Total	16	2	24	-20	1
Metro-adjacent	19	5	42	-33	4
Non-adjacent	13	0	30	-9	2
Northern hinterlands	38	7	-18	-50	-13
B.C. total	20	0	9	-21	2
Yukon/N.W.T.					
Total	56	74	29	-39	-29

Source: Statistics Canada, Census of Population, 1981 and 1991.

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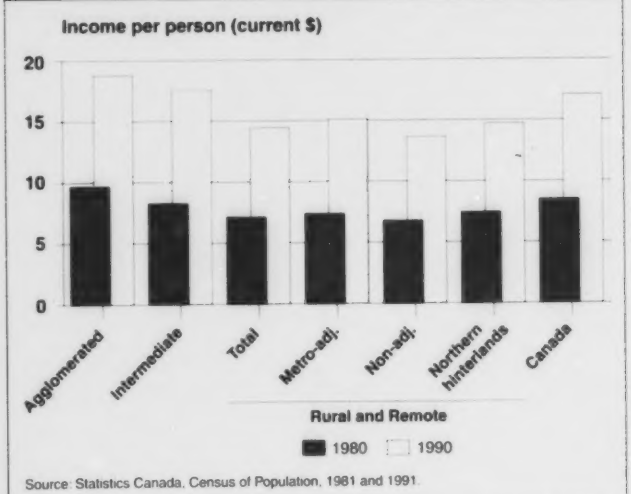
Per capita income is often used as a comparative measure of the economic well-being of a population. The relationship between per capita income and well-being, however, does not take into account the differences in cost of living, wealth, income-in-kind, income from the underground economy, or the distribution of income and wealth within a region. It is therefore only an approximate measure.

The average annual per capita income in Canada increased from $8,438 in 1980 to $17,080 in 1990 (Figure 19). These averages are derived from a total income of $205 billion in 1980 (in 1980 dollars) and $466 billion in 1990 (in 1990 dollars).

Figure 19
Per capita income lower in rural Canada and lowest in non-adjacent sub-regions



Source: Statistics Canada, Census of Population, 1981 and 1991.

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Table 9
Per capita incomes in Canada, 1980-1990

Region	Income per capita (current $)/person		1980		1990	
	1980	1990	Pop. (1981) (millions)	Income (1980$) (billions)	Pop. (1991) (millions)	Income (1990$) (billions)
Canada	$ 8,438	$17,080	24.3	205	27.3	466
Agglomerated	9,617	18,808	10.6	103	12.1	228
Intermediate	8,239	17,497	5.2	43	6.2	108
Rural and remote						
Metro-adjacent	7,356	15,121	3.9	29	4.3	65
Non-adjacent	6,742	13,664	3.8	26	3.9	53
Northern hinterlands	7,404	14,731	0.8	6	0.8	11
Total	7,084	14,455	8.5	60	9.0	129
Atlantic Provinces						
Agglomerated	7,381	14,608	0.1	0.6	0.1	1.2
Intermediate	8,000	17,177	0.4	2.9	0.4	7.1
Rural and remote						
Metro-adjacent	6,271	13,707	0.8	5.1	0.8	11.6
Non-adjacent	5,524	12,268	0.9	5.1	0.9	11.4
Northern hinterlands	6,199	12,492	0.1	0.3	0.1	0.7
Total	5,880	12,940	1.8	10.4	1.8	23.7
Quebec						
Agglomerated	8,807	17,287	3.1	27.5	3.3	57.5
Intermediate	7,290	15,110	1.6	11.4	1.8	26.9
Rural and remote						
Metro-adjacent	6,787	14,283	0.5	3.4	0.5	7.8
Non-adjacent	6,309	12,936	1.0	6.5	1.0	13.4
Northern hinterlands	7,042	13,785	0.2	1.6	0.2	2.8
Total	6,539	13,445	1.8	11.5	1.8	24.0
Ontario						
Agglomerated	9,812	20,324	3.9	38.2	4.5	91.8
Intermediate	8,693	18,899	2.9	25.3	3.5	66.7
Rural and remote						
Metro-adjacent	7,448	16,494	1.2	8.8	1.4	22.6
Non-adjacent	7,045	15,361	0.5	3.4	0.5	8.0
Northern hinterlands	7,502	15,568	0.2	1.2	0.2	2.4
Total	7,346	16,136	1.8	13.4	2.0	33.0
Prairies						
Agglomerated	10,000	17,804	2.0	20.0	2.3	40.9
Intermediate	8,858	16,257	0.4	3.5	0.4	7.2
Rural and remote						
Metro-adjacent	7,709	14,159	1.0	7.3	1.0	14.1
Non-adjacent	7,101	13,247	0.8	5.4	0.7	9.7
Northern hinterlands	6,967	13,589	0.1	1.0	0.2	2.1
Totals	7,403	13,757	1.8	13.7	1.9	25.9
British Columbia						
Agglomerated	10,398	19,254	1.5	16.0	1.9	37.1
Intermediate	—	—	—	—	—	—
Rural and remote						
Metro-adjacent	8,890	16,429	0.5	4.2	0.6	9.2
Non-adjacent	8,564	15,814	0.6	5.4	0.7	10.8
Northern hinterlands	8,743	16,218	0.1	1.0	0.1	1.8
Total	8,706	16,101	1.2	10.5	1.3	21.8
Yukon/NWT	8,177	17,061	0.1	0.6	0.1	1.5

Source: Statistics Canada, Census of Population, 1981 and 1991.

Change in Real Per Capita Income, 1980 to 1990

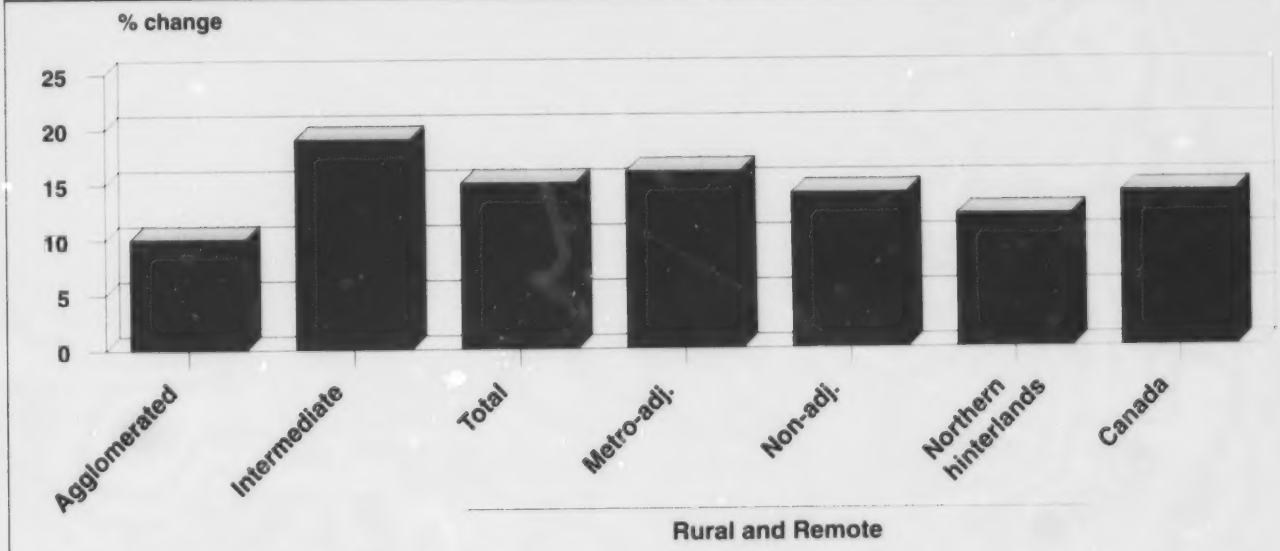
Per capita real income growth in rural Canada is above the national average

Trends in per capita income reflect changes in economic well-being. Unfortunately, there is no direct way to measure these trends accurately, because the values must be deflated by Consumer Price Indices (CPI) to be comparable. CPIs are based on price surveys conducted in Census Metropolitan Areas, so the assumption would have to be made that changes in price levels would be similar in rural and remote regions of Canada. Caution therefore needs to be exercised when interpreting reported changes in per capita real income as changes in economic well-being.

Growth in per capita real incomes is estimated to have been 14% Canada-wide between 1980 and 1990 (Figure 20 and Table 10). The rates in the sub-regions of rural and remote Canada varied between 12% and 16%. The lowest growth rate was in agglomerated regions (10%), while the highest was in intermediate regions (19%).

Figure 20

Per capita real income growth* in rural Canada is above the national average, 1980-90



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Total	5,880	12,940	1.8	10.4	1.8	23.7
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Northern hinterlands	8,743	16,218	0.1	1.0	0.1	1.8
Total	8,706	16,101	1.2	10.5	1.3	21.8
Yukon/NWT	8,177	17,061	0.1	0.6	0.1	1.5

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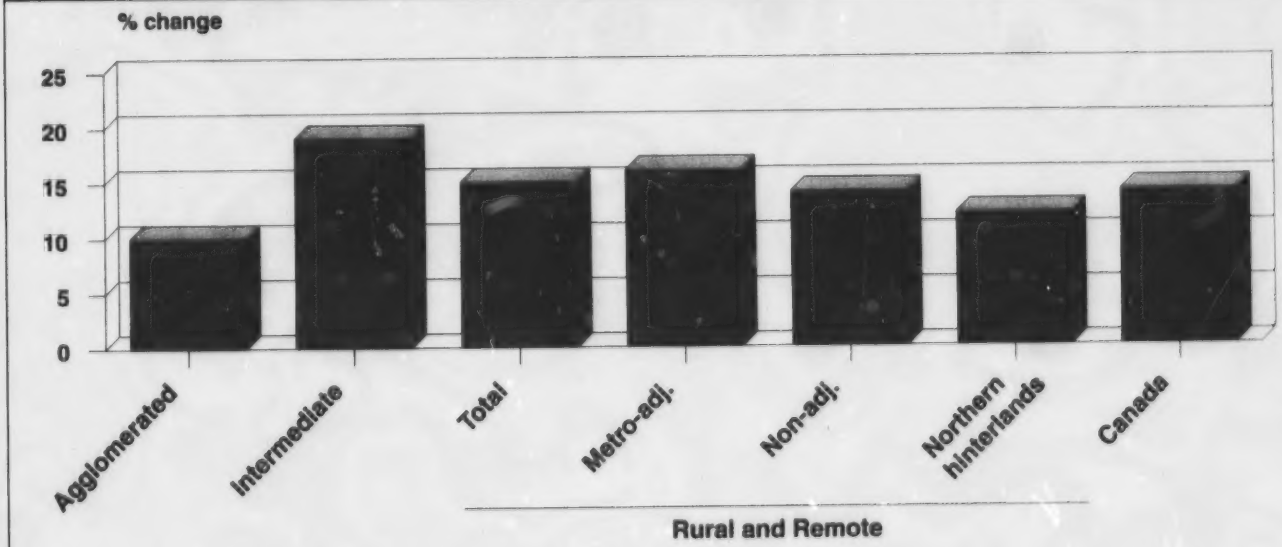
Growth in per capita real incomes is estimated to have been 14% Canada-wide between 1980 and 1990 (Figure 20 and Table 10). The rates in the sub-regions of rural and remote Canada varied between 12% and 16%. The lowest growth rate was in agglomerated regions (10%), while the highest was in intermediate regions (19%).

Figure 20
Per capita real income growth* in rural Canada is above the national average, 1980-90



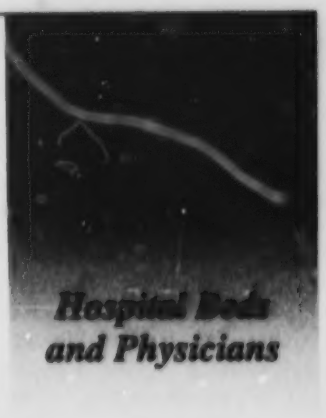
Source: Statistics Canada, Census of Population, 1930 to 1990.
* Deflated by national CPI

From the perspective of political-geographic areas, however, there was considerable variation (Table 10). In the Atlantic provinces, growth varied from 15% in the northern hinterlands to 25% in non-adjacent sub-regions. In Quebec, incomes in metro-adjacent sub-regions (18%) grew fastest. In Ontario, there was strong growth (17-25%) in all rural and remote sub-regions. In the Prairie provinces, there were very divergent patterns in real per capita income growth. It was higher in rural and remote regions (5%) than in agglomerated or intermediate regions, but all the values were low. Within rural and remote areas, the strongest growth was in the northern hinterlands and the weakest in metro-adjacent sub-regions. In British Columbia the growth rates were uniformly low (4%).

Table 10
Percent change in real income in Canada, 1980-1990

Region	Geographic area					
	Canada	Atlantic	Quebec	Ontario	Prairies	British Columbia
Agglomerated	10	11	10	16	0	4
Intermediate	19	21	17	22	3	—
Rural and remote						
Metro-adjacent	16	23	18	25	3	4
Non-adjacent	14	25	15	23	5	4
Northern hinterlands	12	15	10	17	10	4
Total	15	24	16	24	5	4

Source: Statistics Canada, Census of Population, 1980 and 1990.

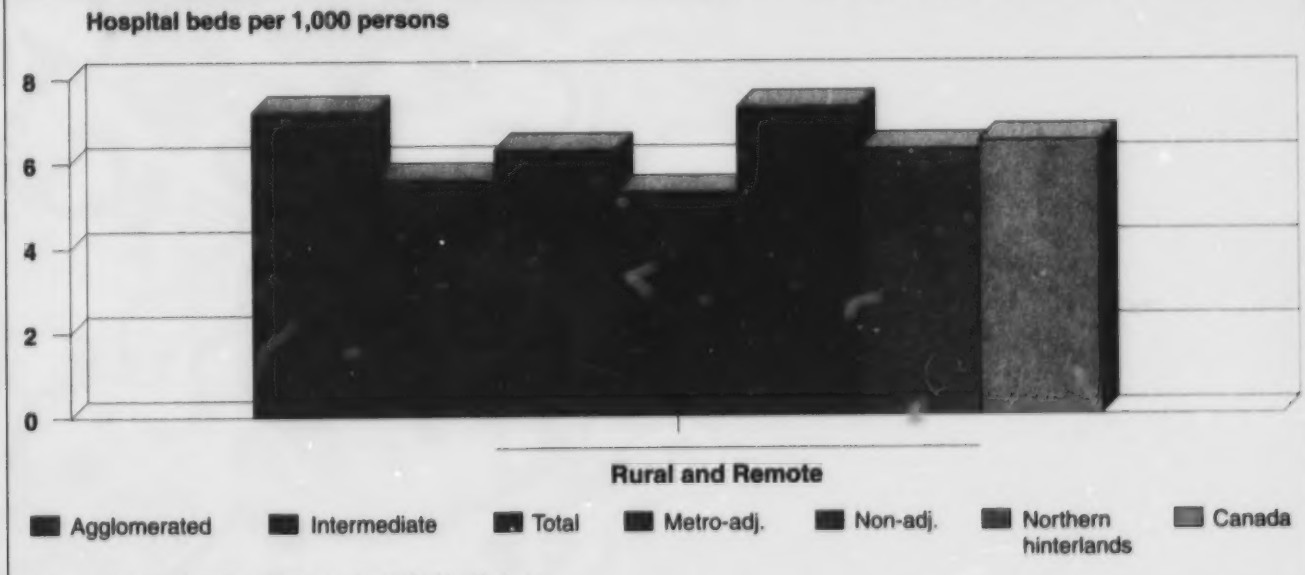


There are relatively more hospital beds but fewer physicians in rural Canada

Universal health care is a fundamental aspect of Canada's social safety net. Basic access to medical services can be assessed using common quantitative indicators such as the number of hospital beds and physicians per capita (although there are some limitations, especially in terms of the quality of health care).

The relationship between the number of hospital beds and remoteness is not clear (Figure 21 and Table 11). Nationwide, there was an average of 6.5 hospital beds per 1,000 people in 1990. The highest ratios were in agglomerated regions and in non-adjacent rural sub-regions. The lowest ratios were in intermediate regions and in metro-adjacent rural sub-regions. Many residents living near major metropolitan areas are probably serviced by hospitals in agglomerated census divisions. Based on the number of hospital beds, access to medical facilities in rural and remote Canada was on a par with that in the rest of Canada. However, this does not explicitly take into account the variable distances required to gain access to health services.

Figure 21
Rural regions non-adjacent to cities have more hospital beds per 1,000 persons in Canada, 1990



Source: Statistics Canada, Canadian Centre for Health Status.

From the perspective of political-geographic areas, however, there was considerable variation (Table 10). In the Atlantic provinces, growth varied from 15% in the northern hinterlands to 25% in non-adjacent sub-regions. In Quebec, incomes in metro-adjacent sub-regions (18%) grew fastest. In Ontario, there was strong growth (17-25%) in all rural and remote sub-regions. In the Prairie provinces, there were very divergent patterns in real per capita income growth. It was higher in rural and remote regions (5%) than in agglomerated or intermediate regions, but all the values were low. Within rural and remote areas, the strongest growth was in the northern hinterlands and the weakest in metro-adjacent sub-regions. In British Columbia the growth rates were uniformly low (4%).

Table 10
Percent change in real income in Canada, 1980-1990

	Geographic area					
Region	Canada	Atlantic	Quebec	Ontario	Prairies	British Columbia
Agglomerated	10	11	10	16	0	4
Intermediate	19	21	17	22	3	—
Rural and remote						
Metro-adjacent	16	23	18	25	3	4
Non-adjacent	14	25	15	23	5	4
Northern hinterlands	12	15	10	17	10	4
Total	15	24	16	24	5	4

Source: Statistics Canada. Census of Population, 1980 and 1990.

10

Hospital Beds and Physicians

There are relatively more hospital beds but fewer physicians in rural Canada

Universal health care is a fundamental aspect of Canada's social safety net. Basic access to medical services can be assessed using common quantitative indicators such as the number of hospital beds and physicians per capita (although there are some limitations, especially in terms of the quality of health care).

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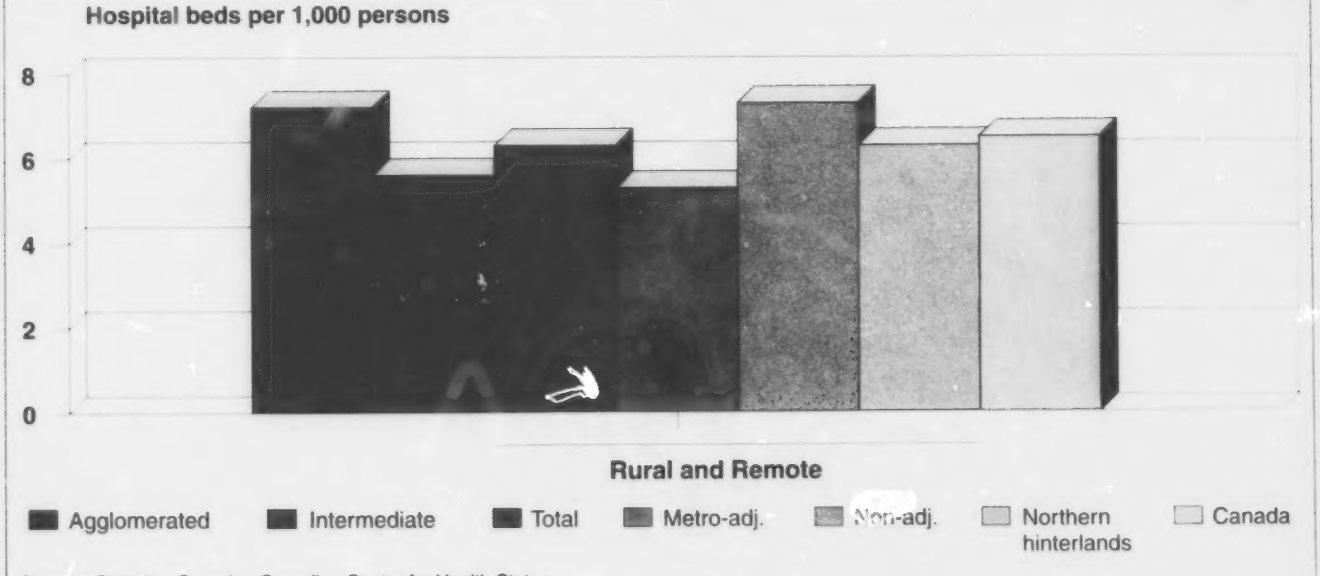


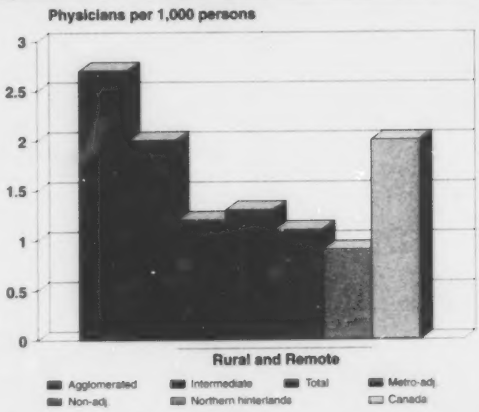
Source: Statistics Canada, Canadian Centre for Health Status.

The ratio of physicians and surgeons to population was inversely related to remoteness (Figure 22). In 1991 it was 2.7 per 1,000 in agglomerated regions and 0.9 per 1,000 in the northern hinterlands. The ratio in rural and remote regions was less than half that in agglomerated regions. It is important to note that physicians and surgeons are enumerated where they live, not where they practice. This probably distorts the numbers in and around agglomerated regions. Some physicians, for example, may live in intermediate regions or metro-adjacent rural sub-regions but practice in agglomerated regions, or vice versa. Highly specialized physicians and the supporting facilities and equipment were, however, undoubtedly concentrated in agglomerated regions.

The ratio of hospital beds to population varied among political-geographic areas (Figure 23). In the Atlantic provinces and British Columbia they were similar to the national average, which was 6.5 beds per 1,000 people. In Quebec it was much higher (8.1 beds per 1,000); in the Prairie provinces and the Yukon and Northwest Territories it was 7.1 beds per 1,000, slightly above the national average; and in Ontario it was lower (5.2 beds per 1,000).

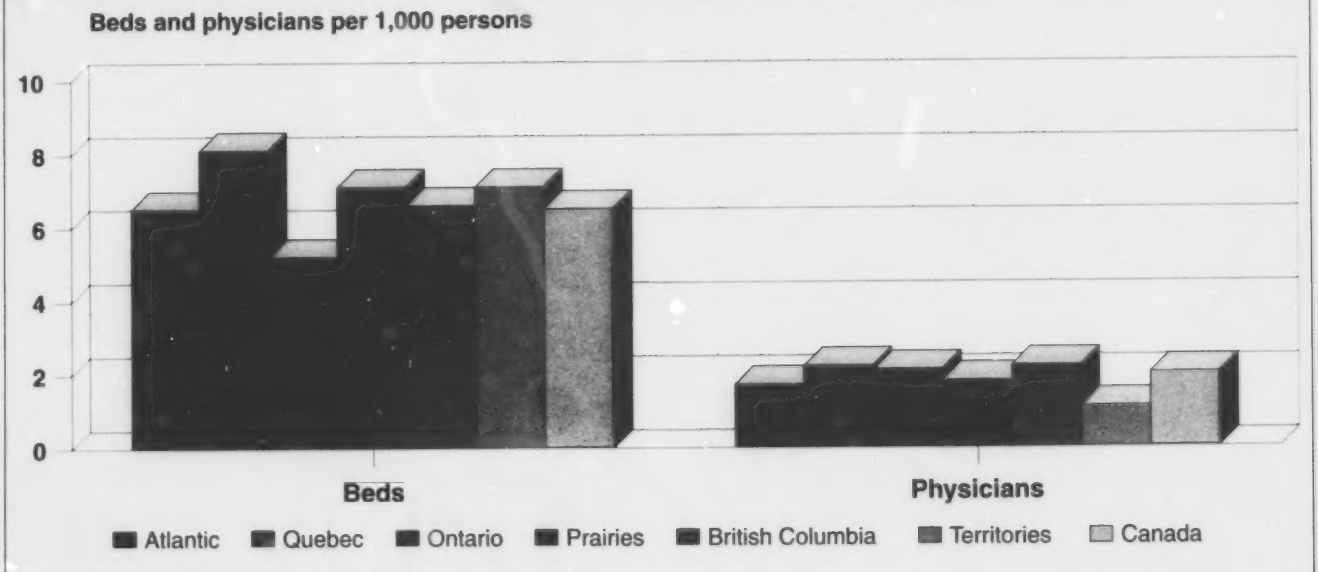
The ratio of physicians and surgeons to population did not vary as widely on a political-geographic basis as it did on a regional basis (Figures 22 and 23). The ratios in Quebec, Ontario, and British Columbia in 1991 were slightly higher than the national average of 2.0 doctors per 1,000 residents, while in Atlantic Canada and the Prairie provinces they were slightly below the national average. There was a relative shortage of physicians and surgeons in the Yukon and Northwest Territories; the ratio there was only about half that in the rest of Canada.

Figure 22
Rural regions near cities have more physicians per 1,000 persons



Source: Statistics Canada, Census of Population, 1991.

Figure 23
Hospital beds (1991) and physicians (1991) per 1,000 persons by geographic areas in Canada



Source: Statistics Canada, Census of Population, 1991.

Table 11
Number of physicians and hospital beds per 1,000 persons by region and geographic area in Canada[1]

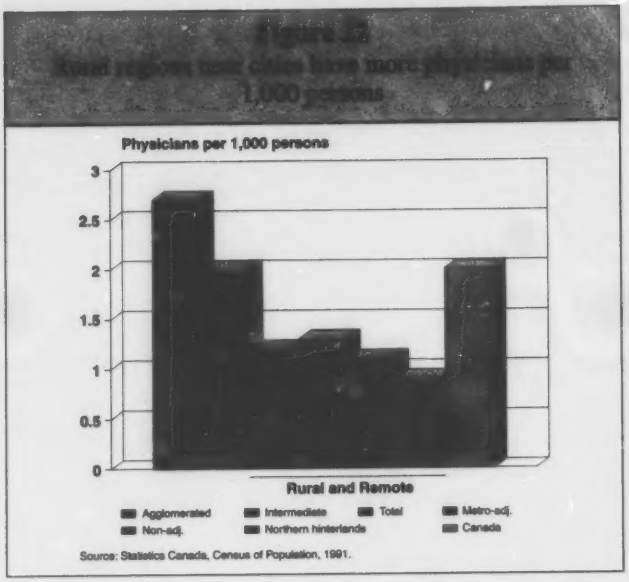
Geographic area Region	No. hospital beds per 1,000	No. physicians per 1,000
Canada		
Agglomerated	7.2	2.7
Intermediate	5.6	2.0
Rural and remote		
Total	6.3	1.2
Metro-adjacent	5.3	1.3
Non-adjacent	7.3	1.1
Northern hinterlands	6.3	0.9
Canada total	6.5	2.0
Atlantic Canada		
Agglomerated	15.5	1.4
Intermediate	7.7	3.6
Rural and remote		
Total	5.8	1.4
Metro-adjacent	5.8	1.6
Non-adjacent	5.9	1.1
Northern hinterlands	5.6	0.7
Atlantic total	6.5	1.7
Quebec		
Agglomerated	9.4	3.1
Intermediate	6.2	1.5
Rural and remote		
Total	7.6	1.1
Metro-adjacent	2.1	1.3
Non-adjacent	10.4	1.1
Northern hinterlands	8.0	0.8
Quebec total	8.1	2.2
Ontario		
Agglomerated	5.7	2.7
Intermediate	4.8	1.9
Rural and remote		
Total	4.7	1.1
Metro-adjacent	4.0	1.0
Non-adjacent	5.8	1.1
Northern hinterlands	6.7	1.0
Ontario total	5.2	2.1
Prairie provinces		
Agglomerated	6.7	2.4
Intermediate	7.6	2.6
Rural and remote		
Total	7.6	1.0
Metro-adjacent	8.5	1.1
Non-adjacent	7.1	1.0
Northern hinterlands	3.8	0.7
Prairie total	7.1	1.8
British Columbia		
Agglomerated	7.2	2.7
Intermediate	n/a	n/a
Rural and remote		
Total	5.8	1.4
Metro-adjacent	5.5	1.6
Non-adjacent	6.0	1.2
Northern hinterlands	5.7	1.3
B.C. total	6.6	2.2
Yukon/N.W.T.	7.1	1.1

Sources: Statistics Canada, Canadian Centre for Health Statistics.
Statistics Canada, Census of Population, 1991.
[1] Hospital bed data is for 1990; Physician/Population data is for 1991.

The ratio of physicians and surgeons to population was inversely related to remoteness (Figure 22). In 1991 it was 2.7 per 1,000 in agglomerated regions and 0.9 per 1,000 in the northern hinterlands. The ratio in rural and remote regions was less than half that in agglomerated regions. It is important to note that physicians and surgeons are enumerated where they live, not where they practice. This probably distorts the numbers in and around agglomerated regions. Some physicians, for example, may live in intermediate regions or metro-adjacent rural sub-regions but practice in agglomerated regions, or vice versa. Highly specialized physicians and the supporting facilities and equipment were, however, undoubtedly concentrated in agglomerated regions.

The ratio of hospital beds to population varied among political-geographic areas (Figure 23). In the Atlantic provinces and British Columbia they were similar to the national average, which was 6.5 beds per 1,000 people. In Quebec it was much higher (8.1 beds per 1,000); in the Prairie provinces and the Yukon and Northwest Territories it was 7.1 beds per 1,000, slightly above the national average; and in Ontario it was lower (5.2 beds per 1,000).

The ratio of physicians and surgeons to population did not vary as widely on a political-geographic basis as it did on a regional basis (Figures 22 and 23). The ratios in



Quebec, Ontario, and British Columbia in 1991 were slightly higher than the national average of 2.0 doctors per 1,000 residents, while in Atlantic Canada and the Prairie provinces they were slightly below the national average. There was a relative shortage of physicians and surgeons in the Yukon and Northwest Territories; the ratio there was only about half that in the rest of Canada.

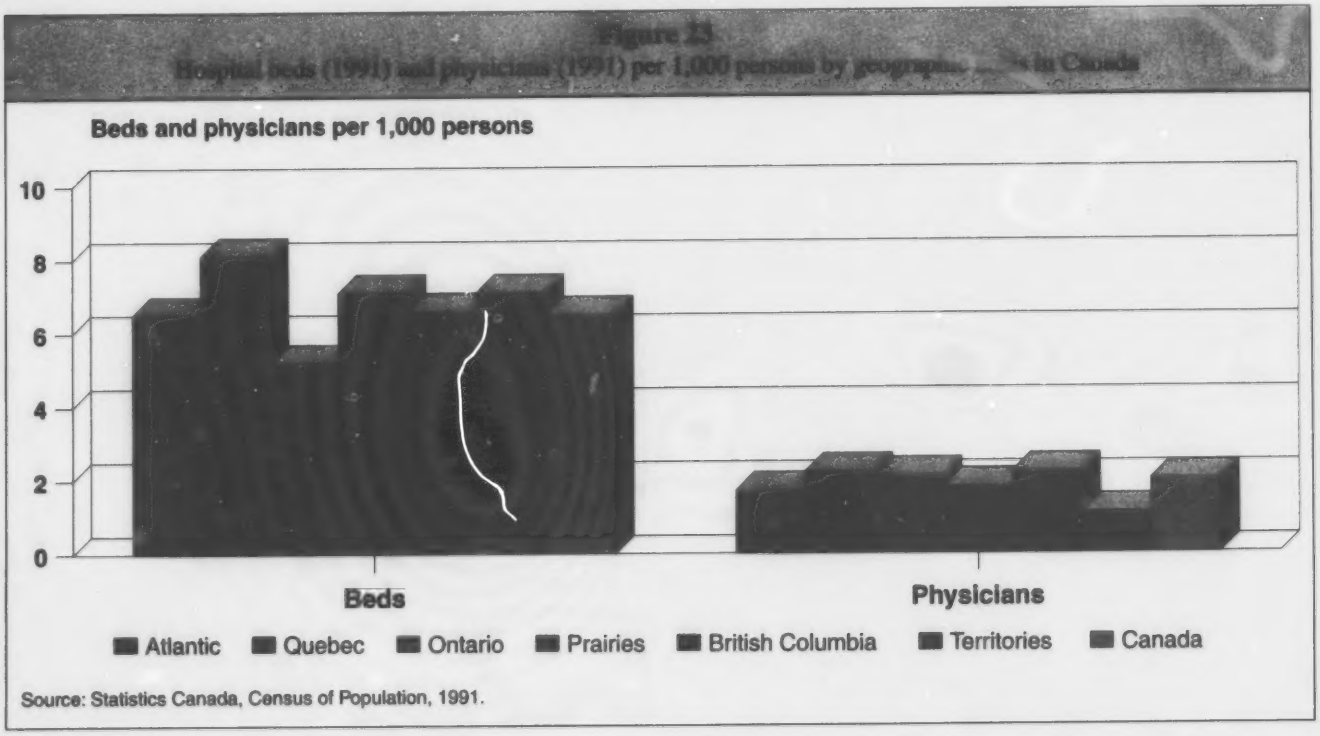


Table 11
Number of physicians and hospital beds per 1,000 persons by region and geographic area in Canada[1]

Geographic area Region	No. hospital beds per 1,000	No. physicians per 1,000
Canada		
Agglomerated	7.2	2.7
Intermediate	5.6	2.0
Rural and remote		
Total	6.3	1.2
Metro-adjacent	5.3	1.3
Non-adjacent	7.3	1.1
Northern hinterlands	6.3	0.9
Canada total	6.5	2.0
Atlantic Canada		
Agglomerated	15.5	1.4
Intermediate	7.7	3.6
Rural and remote		
Total	5.8	1.4
Metro-adjacent	5.8	1.6
Non-adjacent	5.9	1.1
Northern hinterlands	5.6	0.7
Atlantic total	6.5	1.7
Quebec		
Agglomerated	9.4	3.1
Intermediate	6.2	1.5
Rural and remote		
Total	7.6	1.1
Metro-adjacent	2.1	1.3
Non-adjacent	10.4	1.1
Northern hinterlands	8.0	0.8
Quebec total	8.1	2.2
Ontario		
Agglomerated	5.7	2.7
Intermediate	4.8	1.9
Rural and remote		
Total	4.7	1.1
Metro-adjacent	4.0	1.0
Non-adjacent	5.8	1.1
Northern hinterlands	6.7	1.0
Ontario total	5.2	2.1
Prairie provinces		
Agglomerated	6.7	2.4
Intermediate	7.6	2.6
Rural and remote		
Total	7.6	1.0
Metro-adjacent	8.5	1.1
Non-adjacent	7.1	1.0
Northern hinterlands	3.8	0.7
Prairie total	7.1	1.8
British Columbia		
Agglomerated	7.2	2.7
Intermediate	n/a	n/a
Rural and remote		
Total	5.8	1.4
Metro-adjacent	5.5	1.6
Non-adjacent	6.0	1.2
Northern hinterlands	5.7	1.3
B.C. total	6.6	2.2
Yukon/N.W.T.	7.1	1.1

Sources: Statistics Canada, Canadian Centre for Health Statistics.
Statistics Canada, Census of Population, 1991.
[1] Hospital bed data is for 1990; Physician/Population data is for 1991.

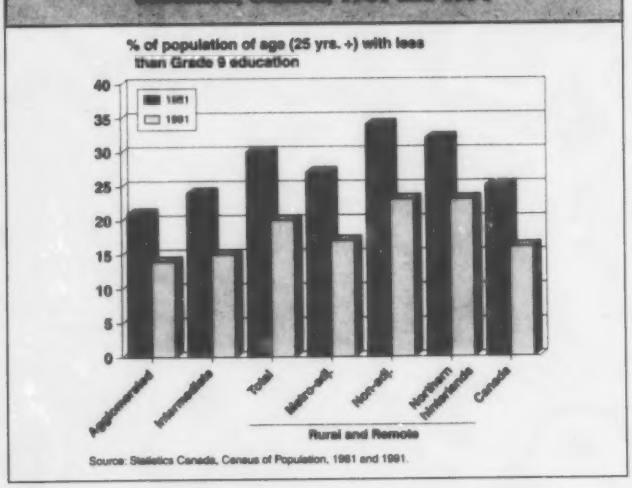
Rural Canadians have lower levels of formal education

Formal schooling is one way to measure the level of human resource development attained by a population. The skill levels associated with diplomas, certificates, and degrees serve as an indicator of the economic and social well-being of a society.

One-quarter of the Canadian population age 25 and over had less than a grade 9 education in 1981 (Figure 24, Table 12). The proportion in rural and remote regions was well above the national average. The highest incidence — one-third — was in non-adjacent and northern hinterlands sub-regions. In agglomerated and intermediate regions, the proportions were lower than the national average.

By 1991, the proportion with less than a grade 9 education Canada-wide had decreased to 16%. This trend is evident in all regions, but the proportions remained higher in rural and remote Canada, with the highest rates in the more remote sub-regions (Figure 24). The most striking trend was the decline of -9 percentage points Canada-wide and -10 percentage points in rural and remote Canada (Table 12). The proportion with less than a grade 9 education declined not only in every regional class, but also in every political-geographic area of Canada.

Figure 24
Higher share in rural areas with less than grade 9 education, Canada, 1981 and 1991



Source: Statistics Canada, Census of Population, 1981 and 1991.

Another quarter of the adult Canadian population had educational levels between grades 9 and 13 in 1981. By 1991 this had decreased in all but rural non-adjacent sub-regions. While the proportion in this category dropped by -2 percentage points Canada-wide; there was no decline in rural and remote regions.

The changes in the proportions attaining post-secondary education were less pronounced. Those attaining trade certification were virtually unchanged between 1981 and 1991 and varied little among regions. The same is true of other non-certificate, non-university training.

Non-university-based certificate programs are of relative and increasing importance in Canada. By 1991, the proportions attaining this level of education reached almost 20% (Table 12) and increased in all regions between 1981 and 1991.

Eighteen percent of people over 25 years of age Canada-wide had some university education or a university degree in 1981; this had increased to 22% by 1991 (Figure 25). In rural and remote Canada only 12-14% had university training, less than 65% of the national average. The proportion was higher than the national average in agglomerated regions (27% in 1991), and lower in intermediate regions.

There was some extreme variation in education levels among the regional classes within political-geographic

M121

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Table 12
Distribution of persons (25 years of age or more) by level of schooling, 1981 and 1991

Level of Schooling	Regional classification													
							Rural and Remote							
	Canada		Agglomerated		Intermediate		Total		Metro-adj.		Non-adj.		Northern hinterlands	
	1981 %	1991 %	1981 %	1991 %	1981 %	1991 %	1981 %	1991 %	1981 %	1991 %	1981 %	1991 %	1981 %	1991 %
Less than grade 9	25	16	21	14	24	15	30	20	27	17	34	23	32	23
Grade 9-13	23	21	21	18	22	20	25	25	26	25	24	25	21	22
High school graduate	11	14	12	14	13	15	10	13	10	14	10	13	10	12
Trade certificate	4	4	3	4	4	5	4	5	4	5	4	5	5	6
Other certificate[1]	15	17	15	16	16	18	14	18	15	18	14	16	15	18
Other non-certificate[1]	5	6	6	6	5	6	4	5	5	6	4	5	4	6
Some university	8	9	9	10	7	8	6	7	6	7	6	6	6	6
University degree	10	13	13	17	9	12	6	7	6	8	5	7	6	7

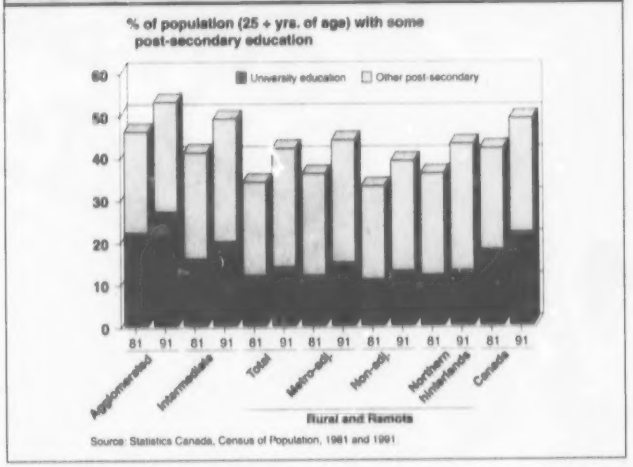
[1] Non-university based training
Source: Statistics Canada, Census of Population, 1981 and 1991.

areas. In metro-adjacent sub-regions, the highest proportion of people who did not graduate from high school was in Manitoba (50%) and the lowest was in British Columbia (35%). In both Newfoundland and Saskatchewan, 56% had no high school diploma in non-adjacent sub-regions; in British Columbia the figure was 39%. Also in non-adjacent sub-regions, 10% of people over 25 years of age had at least some university exposure in Quebec, while in Newfoundland and Prince Edward Island it was 20%.

In the northern hinterlands there were some interesting contrasts. In 1991 the highest proportions without high school diplomas were in northern Manitoba and northern Saskatchewan (53-54%) and the lowest was in theYukon (23%). On the other hand, the highest share of university-educated people was in the Yukon (26%) and the lowest was in northern Quebec (10%).

In agglomerated regions in 1991 the proportion with less than a high school diploma ranged from a low of 28% in British Columbia to a high of 41% in New Brunswick. Still in these provinces, a high of 28% and a low of 17%, respectively, had some university education or received a degree. In intermediate regions, the lowest proportion of university-educated people was in Quebec (14%), while the highest was in New Brunswick (31%).

Figure 25
Lower share in rural areas with some post-secondary education, Canada, 1981 and 1991



Source: Statistics Canada, Census of Population, 1981 and 1991

Housing (non-native, off-reserve)

Rural non-farm housing conditions improved between 1981 and 1991

Housing is an essential gauge of the well-being of a population. It is measured by societal standards that establish the suitability of housing — in terms of size, condition, and affordability — for the people occupying it. Housing conditions are assessed using a single integrated indicator of housing well-being called "core housing need." Households are considered in need if their dwellings do not meet one or more of the three standards listed below and their incomes are under what is required to rent housing that meets these standards.

- The **suitability norm** specifies the number of bedrooms each household must have in order not to be crowded according to its family size and composition.
- The **adequacy norm** requires that dwellings need no more than minor repairs or regular maintenance and that they have hot or cold running water, an inside toilet, and a bath or shower.
- The **affordability norm** states that a household should not have to spend more than 30% of its income for adequate shelter.

Between 1981 and 1991 the number of rural households increased by 10% to almost 1.5 million, or 16% of all households. Despite this increase, there was no change in the number of households in housing need, so in fact the percentage in need declined slightly to 13%. As a result,

Definitions

Rural non-farm, rural farm, and urban areas are specifically defined to measure housing conditions using 1981 and 1991 Census data. However, the term "rural" refers to both farm and non-farm for this discussion on housing.

Rural non-farm — All municipal jurisdictions with populations under 2,500 that are not part of larger cities are defined as rural because
1) they do not have fully developed housing markets that include viable rental sectors, and
2) they are not serviced by construction and renovation industries. This definition recognizes that housing solutions for households in need in rural areas differ from those in larger urban housing markets.

Rural farm — Household shelter costs cannot be estimated for farm households because they cannot be distinguished from farm operating costs. Since only housing adequacy and suitability are measured for farms, farm housing conditions are presented separately.

Urban — Areas with populations of 2,500 and over with densities of at least 400 people per square kilometre are considered urban. They also support a wider range of housing assistance programs. Urban households are less likely to organize informal solutions to housing need than are rural households.

Table 12
Distribution of persons (25 years of age or more) by level of schooling, 1981 and 1991

Level of Schooling	Regional classification													
							Rural and Remote							
	Canada		Agglomerated		Intermediate		Total		Metro-adj.		Non-adj.		Northern hinterlands	
	1981 %	1991 %	1981 %	1991 %	1981 %	1991 %	1981 %	1991 %	1981 %	1991 %	1981 %	1991 %	1981 %	1991 %
Less than grade 9	25	16	21	14	24	15	30	20	27	17	34	23	32	23
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Some university	8	9	9	10	7	8	6	7	6	7	6	6	6	6
University degree	10	13	13	17	9	12	6	7	6	8	5	7	6	7

[1] Non-university level training
Source: Statistics Canada, Census of Population, 1981 and 1991.

areas. In metro-adjacent sub-regions, the highest proportion of people who did not graduate from high school was in Manitoba (50%) and the lowest was in British Columbia (35%). In both Newfoundland and Saskatchewan, 56% had no high school diploma in non-adjacent sub-regions; in British Columbia the figure was 39%. Also in non-adjacent sub-regions, 10% of people over 25 years of age had at least some university exposure in Quebec, while in Newfoundland and Prince Edward Island it was 20%.

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Figure 25
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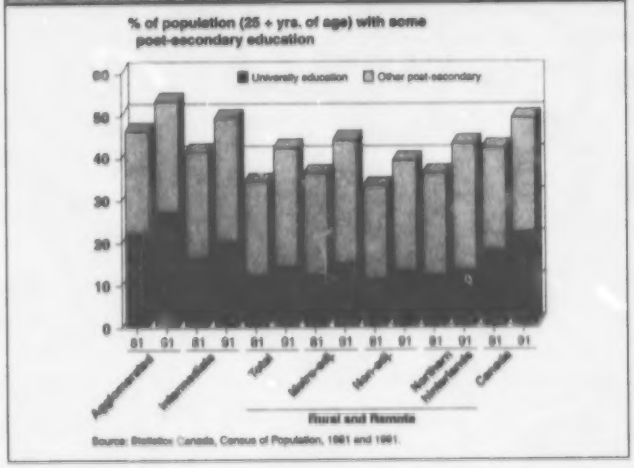

Source: Statistics Canada, Census of Population, 1981 and 1991.

Housing (non-native, off-reserve)

Rural non-farm housing conditions improved between 1981 and 1991

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Between 1981 and 1991 the number of rural households increased by 10% to almost 1.5 million, or 16% of all households. Despite this increase, there was no change in the number of households in housing need, so in fact the percentage in need declined slightly to 13%. As a result,

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1) they do not have fully developed housing markets that include viable rental sectors, and
2) they are not serviced by construction and renovation industries. This definition recognizes that housing solutions for households in need in rural areas differ from those in larger urban housing markets.

Rural farm — Household shelter costs cannot be estimated for farm households because they cannot be distinguished from farm operating costs. Since only housing adequacy and suitability are measured for farms, farm housing conditions are presented separately.

Urban — Areas with populations of 2,500 and over with densities of at least 400 people per square kilometre are considered urban. They also support a wider range of housing assistance programs. Urban households are less likely to organize informal solutions to housing need than are rural households.

the share of national housing need among these rural households declined from 18% to 14%, while that among urban households increased.

Four of every five rural households owned their own homes in 1991, compared with three of every five urban households (Table 13). Not surprisingly, homeowners also made up the majority of rural households in housing need. This contrasts with urban areas, where the majority in housing need were renters.

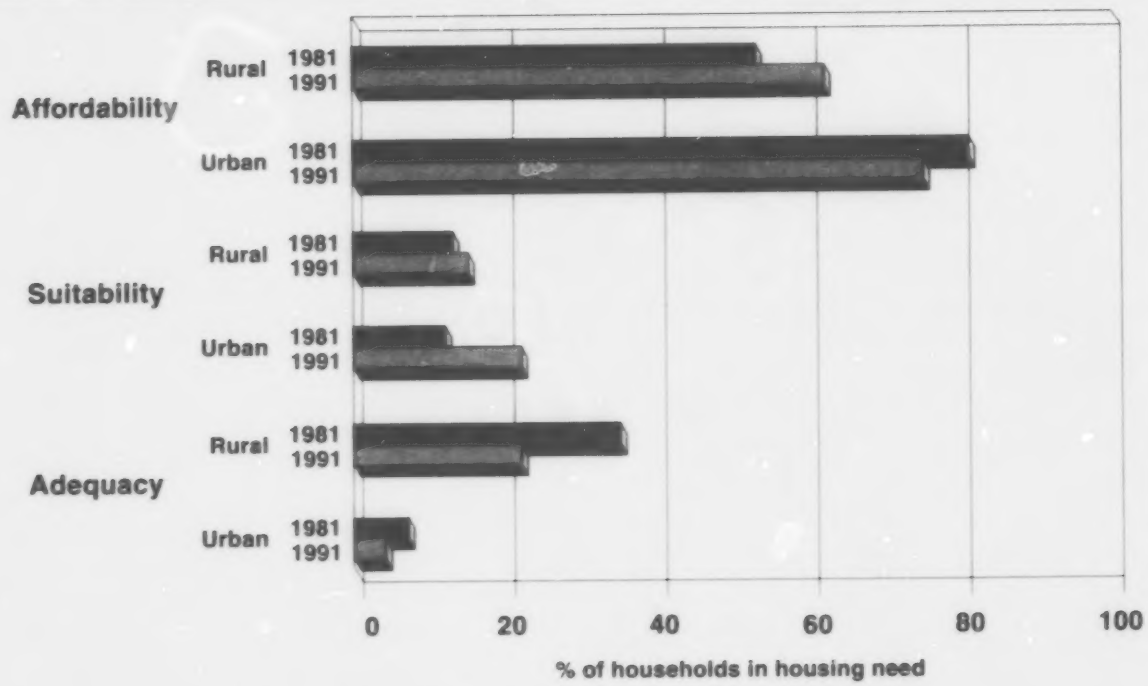
Although housing adequacy need declined over the decade, rural homeowners were still most in need in 1991. In fact, housing adequacy problems among homeowners were the cause of almost one-fifth of all rural housing need in 1991. In contrast, urban renters were still the most likely to have affordability problems (Figure 26).

Over the decade, the proportion of rural households in housing need because of basic dwelling adequacy problems dropped (Figure 26). At the same time, however, the proportion in need because of affordability problems increased. By 1991, despite the fact that rural housing affordability and suitability problems were still significant, rural and urban housing need were more similar than they were in 1981.

Farm Housing in 1991

In 1991, 4.8% of farm households were in housing need (Table 14). Farm households were most likely to be in housing need, however, if they were located in the Prairie provinces of Saskatchewan and Alberta.

Figure 26
Rural housing need increasing in affordability and suitability but improving in adequacy, 1981 to 1991



Source: Statistics Canada, Census of Population, 1981 and 1991.

Table 13
Owner-occupied rural households in greatest need in 1991

Category	Rural areas			Urban areas		
	Owners	Renters	Total	Owners	Renters	Total
			percent			
All households	80	20	100	60	40	100
Households in housing need	59	41	100	25	75	100

Source: Statistics Canada, Census of Population, 1991.

Table 14
Farms with adequacy and/or suitability housing need by province, 1991

Province	Total # of rural farms	Below adequacy or suitability standards	# below standards that are in need	% of total farms in need
Newfoundland	225	45	0	0.0
Prince Edward Island	1,590	335	85	5.3
Nova Scotia	2,195	360	75	3.4
New Brunswick	1,660	305	70	4.2
Quebec	26,445	4,230	505	1.9
Ontario	49,910	8,035	1,105	2.2
Manitoba	18,860	3,365	1,060	5.6
Saskatchewan	39,920	6,300	2,975	7.5
Alberta	43,760	8,015	3,145	7.2
British Columbia	11,765	1,935	490	4.2
Northwest Territories	0	0	0	0.0
Yukon	0	0	0	0.0
Canada	196,335	32,925	9,515	4.8

Source: Research and Statistical Services Division, Canada Mortgage and Housing Corporation.
Note: Column totals may not equal the sum of column entries because of rounding.

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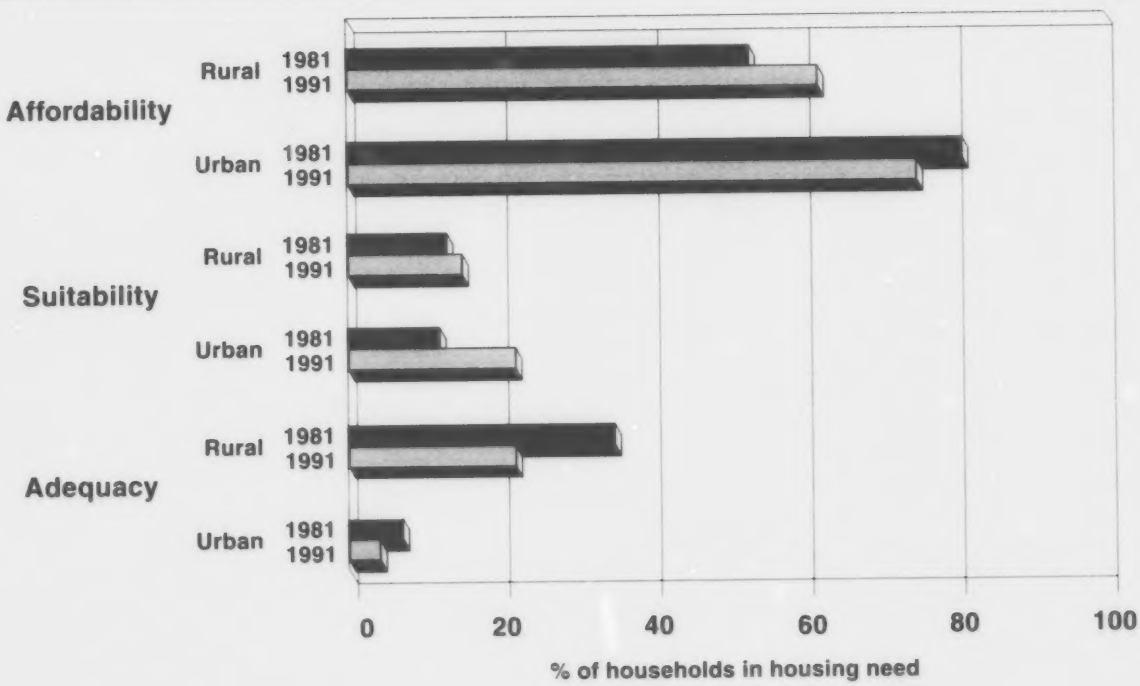

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Source: Research and Statistical Services Division, Canada Mortgage and Housing Corporation.
Note: Column totals may not equal the sum of column entries because of rounding.

Aboriginal populations are young, living longer, and growing rapidly

Based on Census data, the Aboriginal populations in Canada can be subdivided into those who are Aboriginal only and those who have at least some Aboriginal ancestry. The former identified themselves as either registered Indians and/or having exclusively Aboriginal ancestry, and the latter identified themselves as having both Aboriginal and non-Aboriginal origins. "Rural" areas are those with populations of less than 1,000 and population densities of less than 400 inhabitants per square kilometre.

Aboriginal people were more likely to live in rural Canada than was the Canada-wide population. In 1986, less than one-quarter of all Canadians lived outside urban centres, while over 60% of Aboriginal only populations lived in rural areas. Nearly 46% of all people claiming some Aboriginal ancestry lived outside urban areas. Canadians of Aboriginal ancestry comprised just over 5% of Canada's rural population and represented over 70% of the rural populations in the Northwest Territories and the Yukon.

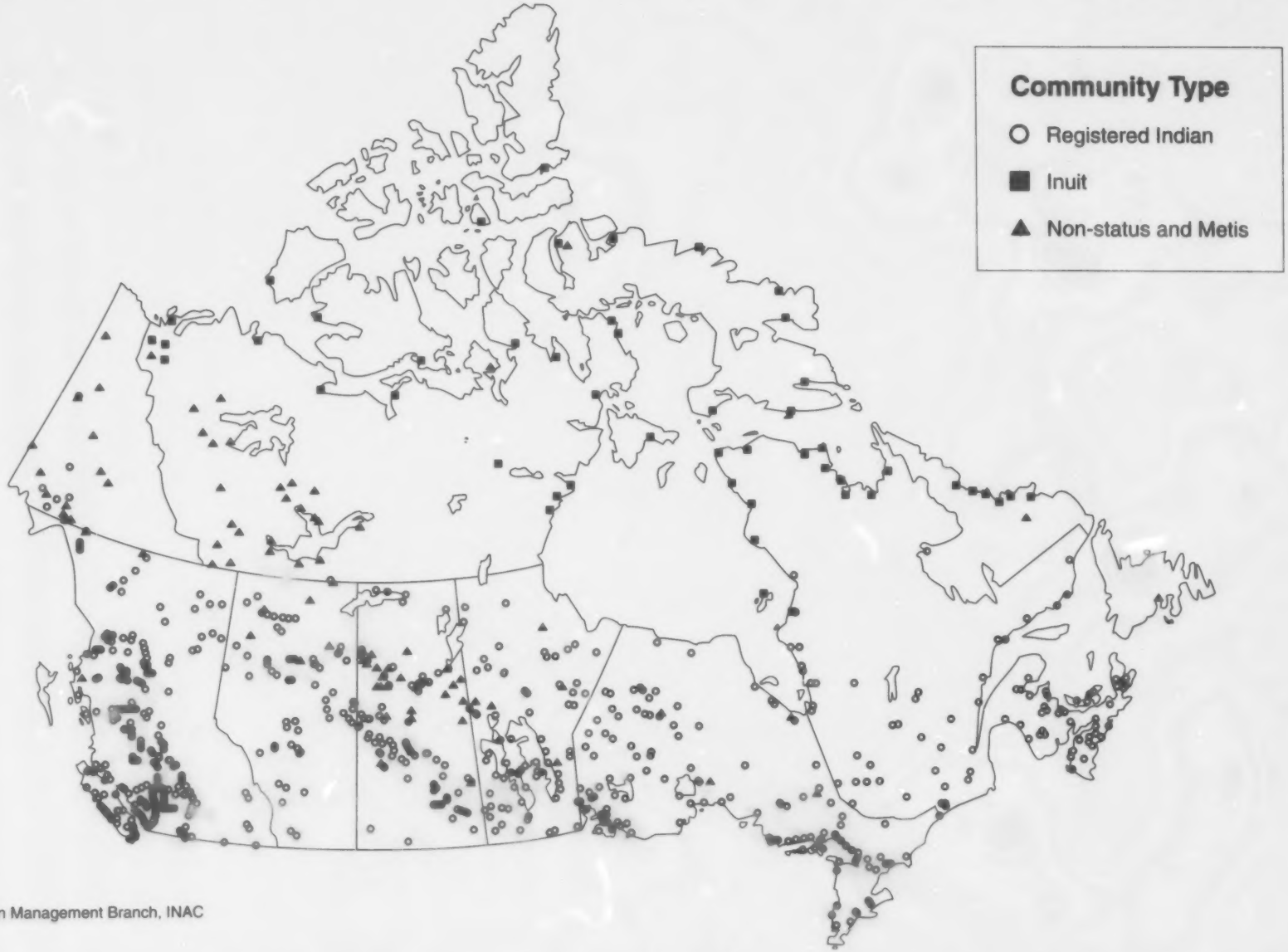
Inuit communities and the reserves and settlements of registered Indians are mostly located in rural regions, often in remote locations (Figure 27). In 1986, 96% of the on-reserve registered Indian population and 74% of the Inuit population lived in rural Canada.

Aboriginal populations are young and growing rapidly. In 1986, 38% of the rural Aboriginal only population was under 15 years of age. The figure was the same among those of Aboriginal ancestry. This compares with less than 25% in rural Canada as a whole. While 9% of the rural population Canada-wide was aged 65 and older, only 4% of rural Aboriginal populations were in this age group.

The growth rates of the Aboriginal populations are difficult to estimate from census data. From other sources it is estimated that the annual growth rate of the on-reserve Indian population was just under 3% between 1986 and 1991. By contrast, those of Canada's rural population and the country as a whole were 1.4% and 1.5%, respectively. Rural Aboriginal populations will continue to grow rapidly. Even though Aboriginal women are having fewer children, the survival rates of Aboriginal infants during their first year of life and the overall life expectancy for Aboriginal people continue to improve.

Census data from 1981 and 1986 indicate that migration was only a minor factor in rural Aboriginal population change. Individuals with some Aboriginal ancestry were about 6% more likely to migrate from urban to rural areas than from rural to urban areas. Those with Aboriginal ancestry only were about 2% more likely to move from rural to urban areas.

Figure 27
Census subdivisions with Aboriginal communities in Canada



Information Management Branch, INAC

Aboriginal Socio-economic Circumstances

Despite some gains, Aboriginal education, employment, and housing lag behind the Canada-wide levels

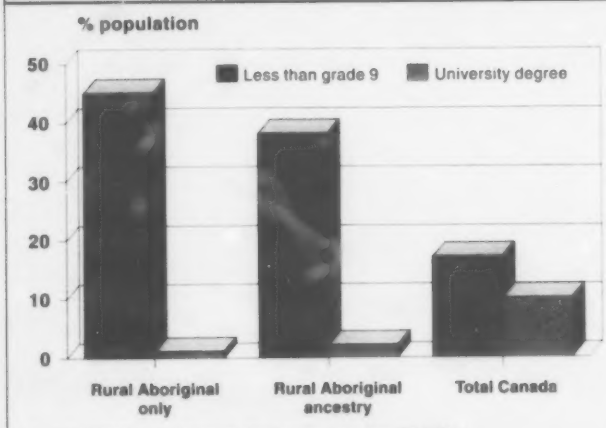
An overview of the socio-economic circumstances of rural Aboriginal populations in Canada can be provided by data from the 1986 Census on the levels of education, employment ratios, average incomes for employed individuals, average per capita incomes, and housing characteristics.

Aboriginal peoples in rural areas had less formal education than did the population of Canada as a whole (Figure 28). In 1986, nearly half of those aged 15 years or over who were Aboriginal only and 38% of those who had some Aboriginal ancestry had less than a grade 9 education. A relatively small proportion of rural Aboriginal populations held a university degree. Those of Aboriginal ancestry were 40% as likely as rural Canadians to hold a degree, and the Aboriginal only population was 10% as likely as all Canadians to hold a degree.

The employment ratios (the proportions of individuals aged 15-64 years who are employed) of Aboriginal and other populations in Canada (Figure 29) were also very different.

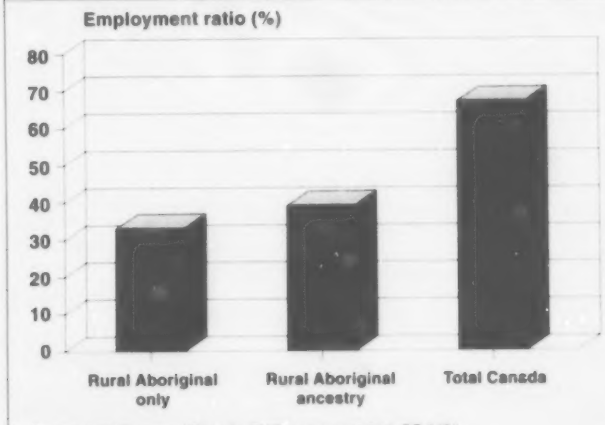
In 1985, the average incomes from all sources of Aboriginal people aged 15 and over (with some reported income) were lower than those in the rest of Canada, ranging from 61% to 69% of that in rural Canada and 54% and 61% of the Canada-wide average (Table 15). Aboriginal per capita incomes from all sources were also

Figure 28
Education levels of Aboriginal populations are below those of other Canadians (ages 15 years+), 1986



Source: 1986 Census of Canada, INAC customized data, PO 3184.

Figure 29
Employment ratios (ages 15-64 years) for the Aboriginal population are below those of other Canadians, 1986



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lower, ranging from 45% and 52% of that of rural Canada and 37% and 42% of Canada as a whole.

Table 15
Average 1985 incomes (all sources) for Aboriginal and non-Aboriginal populations in Canada

Population category	Average 1985 income (all sources) 1985 $s	Average 1985 per capita income (all sources) 1985 $s
Rural Aboriginal only	$ 9,810	$ 4,593
Rural Aboriginal ancestry	11,055	5,202
Total Canada	18,188	12,445

Source: Statistics Canada, Census of Population, 1986.

Housing was assessed on the basis of the average number of people per room in a household. The average among those who were Aboriginal only was 0.84 per room, and among those who had some Aboriginal ancestry it was 0.74 per room. In contrast, the average in rural Canada and Canada-wide was just under 0.5 per room.

Changes in socio-economic circumstances between 1981 and 1991

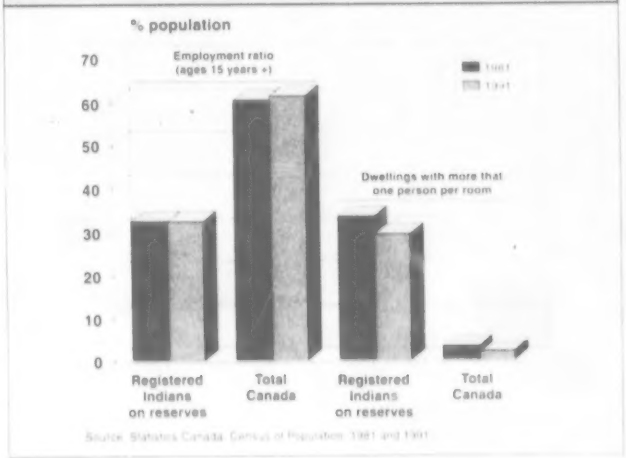
To assess the change in socio-economic circumstances among the rural Aboriginal populations in Canada, data on registered Indians on reserves are compared with the Canada-wide average between 1981 and 1991.

The gap between the educational levels attained by Aboriginal populations and Canada as a whole narrowed slightly. The proportion of registered Indians on reserves with less than a grade 9 education decreased considerably over the period, and the proportions with high school graduation or some post secondary education increased.

There was little change in employment ratios in either population group (Figure 30). The housing conditions of registered Indians on reserves improved only slightly, and the ratio of dwellings with more than one person per room was 10 times higher on reserves than in the general population in both 1981 and 1991.

Nor was there major change in the average incomes of either on-reserve registered Indians or the Canada-wide population (Table 16). That of registered Indians aged 15 years or above with income decreased by $2,000 between 1981 and 1991 (after adjusting for inflation), while that of all Canadians increased by $1,000. The Canada-wide average annual income, however, increased from two times that of registered Indians on reserves in 1981 to 2½ times in 1991.

Figure 30
Minor changes occur in employment ratios and housing use for registered Indians on reserves and all Canadians, 1981-1991



The per capita incomes of both populations increased slightly between 1981 and 1991. Those of registered Indians on reserves, however, were approximately one-third of the Canadian average in both 1981 and 1991.

Table 16
Average annual income for individuals with income, and per capita average income from all sources for on-reserve registered Indians and all Canadians in 1981 and 1991 (constant $1990)

	Registered Indians on reserve		Total Canada	
Income category	1981	1991	1981	1991
Average annual, all sources (ages 15 years+)	$12,431	$10,420	$23,127	$24,001
Per capita, all sources	$5,314	$5,799	$15,182	$17,271

Source: Statistics Canada, Census of Population, 1981 and 1991.

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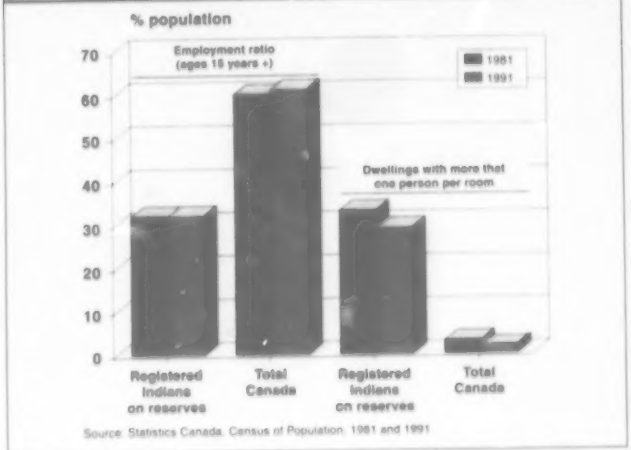

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Appendix A

Rural environmental indicators — Work in progress

With Canada's commitment to sustainable development and the recognition of the importance of environment-economy-society linkages, the Interdepartmental Committee on Rural and Remote Canada (ICRRC) was interested in developing rural environmental indicators to support the rural socio-economic indicators already established by the Organisation for Economic Cooperation and Development (OECD).

As a result, the development of rural environmental indicators was initiated as part of the *Rural Canada: A Profile* project. This area proved to be a significant challenge as no other country to date has been able to establish a set of rural environmental indicators. Indeed the OECD project has made little progress in this area. After considerable effort on the part of the committee members, the development of appropriate rural environmental indicators still remained problematic.

However, the ICRRC has made progress in the areas of species at risk, forest disturbances, and agricultural land use. These particular indicators were chosen because of their direct relevance to rural Canada and the availability of quantitative data. The above chosen rural environmental indicators should be viewed at this time to be "work in progress."

There is optimism that a subsequent publication will build on this work and present rural environmental indicators in the main text. The committee welcomes comments on these draft indicators with the hope of moving toward developing environmental indicators that are meaningful for rural Canada.

Please direct any comments to:

Interdepartmental Committee on Rural and Remote Canada
c/o Labour Market Services Branch
Human Resources Development Canada
5th Floor, Phase IV, Place du Portage
140 Promenade du Portage, Ottawa, Ontario
K1A 0J9

Attention: Ken Donnelly
tel: (819) 994-6701
fax: (819) 953-5941

Recognized species at risk increasing rapidly in Canada

The fate of living organisms other than humans hinges more each decade on the direct and indirect environmental degradation caused by all societies. Both overt and subtle change progressively hinders the ability of many organisms to survive, reproduce and sustain healthy populations. Species with narrow tolerance limits to one or more environmental factors usually are most at risk. As entire ecosystems change, however, impacts may be significant enough to endanger entire communities of species. At this point, all species, including human societies are at risk. Species at risk, therefore, often serve as indicators of change in either selected environmental factors or extensive deterioration of entire systems. As indicators of change, numbers of species at risk are useful, but are not the only factors to consider. For example, although the number of listed species at risk may increase rapidly, corresponding environmental degradation may not occur at the same rate.

Although Canada is a modern urbanized nation, the extraction of resources and other environmental impacts of society are felt throughout rural and remote areas. Because most habitats are in rural locations, species at risk are especially good indicators for the health of rural environments.

The term "species" refers to any indigenous species, subspecies or geographically separate population. This leads to the recognition of five categories of species at risk:

- **Extinct** refers to a species formerly indigenous to Canada that no longer exists anywhere.
- **Extirpated** describes a species no longer existing in the wild in Canada but occurring elsewhere.
- **Endangered** species are those threatened with imminent extinction or extirpation throughout all or a significant portion of its Canadian range.
- **Threatened** refers to a species likely to become endangered in Canada if the factors to which it is vulnerable are not reversed.
- **Vulnerable** describes species at risk because of low or decreasing numbers, small ranges or other reasons, but not threatened.

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National lists of species at risk are kept for all native mammals, birds, fish, amphibians, reptiles, and vascular plants. Species lists are maintained for each province and territory in Canada, and for selected environments (eg. Atlantic Ocean, Hudson Bay).

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) determines the lists of species at risk in Canada. Some species have been recognized in various stages of risk for decades, but significant clarification of terminology and increased efforts to identify and classify species has occurred since 1984. Data, however, are incomplete not only among geographical areas, but also among the classes of organisms. The information presented, therefore, constitutes a report on current known status (1994), and trends beginning in 1984. All data are derived from the COSEWIC report entitled *Canadian Species at Risk*, April 1994.

Prior to 1984, 36 species in all categories and classifications were recognized at risk in Canada (Figure 31). As efforts at identification increased and expanded since 1984, the number of species increased dramatically each year, reaching a total of 255 since 1994. Among categories, the number of all species increases as the degree of risk decreases. In 1994, 9 species are extinct in Canada, 11 are extirpated, 55 are endangered, 62 are threatened, and 118 are vulnerable. The number of extinct and extirpated species has not changed noticeably since 1987, but the numbers in all other categories have increased dramatically (Table 17).

Among biological groups, vascular plants have the highest number of known species at risk (Figure 32). The vertebrate groups are about equally represented, with fish, mammals and birds having between 48-59 species in all risk categories. Reptiles and amphibians are not common. The knowledge of the status of species groups varies considerably. The status of mammals and birds is better known than that of fish, amphibians and reptiles and vascular plants. Trends in all groups are upward.

Figure 31
Species at risk in Canada, all risk categories, all species groupings, 1984-1994

Source: Canadian Species at Risk, April 1994, COSEWIC

Table 17
Numbers of species of all classifications in each at risk category in Canada, 1984-1994

	Number of species of all types											
Category	<1984	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
Extinct	0	1	6	7	8	9	9	9	9	9	9	9
Extirpated	2	2	2	2	7	7	7	8	10	11	11	11
Endangered	11	16	20	28	31	34	35	39	46	49	52	55
Threatened	5	11	13	17	25	34	37	42	47	51	53	62
Vulnerable	18	26	37	43	54	69	82	86	94	105	108	118
Total	36	56	78	97	125	133	170	184	206	225	233	255

Source: Canadian Species at Risk, April 1994, COSEWIC.

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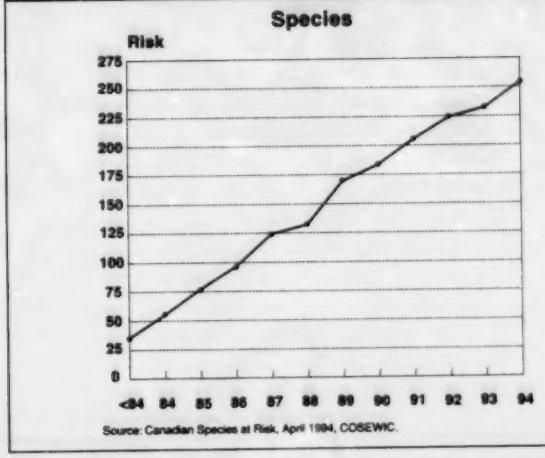

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Extirpated	2	2	2	2	7	7	7	8	10	11	11	11
Endangered	11	16	20	28	31	34	35	39	46	49	52	55
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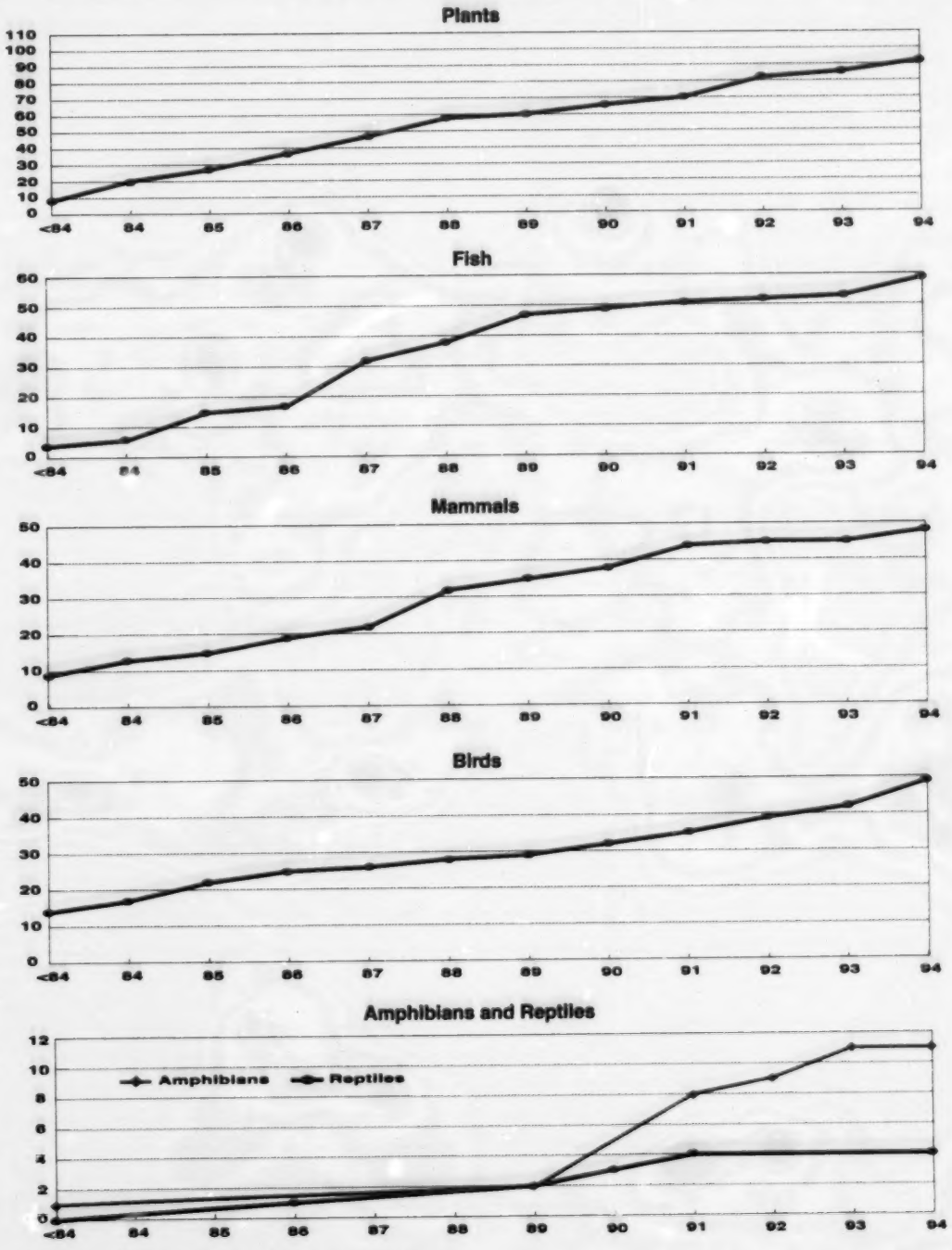


Source: Canadian Species at Risk, April 1994, COSEWIC.

The 1994 COSEWIC list also indicates reexamination of status for a number of species. Twelve species were placed in a higher risk category, five were moved to a lower risk category, and twelve were left at the original designation. Two of the five species moved to a lower risk category were delisted.

The number of species at risk varies considerably among the provinces, territories and regions of Canada (Figure 33). Ontario has the highest number of species at risk (n=129) which reflects both high biodiversity and high pressure from human settlements. However, another reason for this might be the unequal amount of knowledge on species potentially at risk between populated and less populated areas. For example, little is known about the vascular plant status in rural and remote areas such as the Northwest or Yukon Territories. The number of species listed by COSEWIC is only the tip of the iceberg in terms of species at risk in Canada. Until 1994, COSEWIC did not have the mandate to assign status to invetebrates or non-vascular plants. With bacteria, these two groups represent the bulk of species diversity in Canada.

Legend
Mammals,Birds,Fish,Plants,Reptiles,Amphibians
2,4,6,8,10,12
42
Yukon
2,5,2,0,0,0
9
Northwest Territories
10,9,3,0,0,0
22
Hudson Bay
1,0,2,0,0,0
3
Newfoundland
3,9,1,0,0,0
13
Atlantic Ocean
8,0,1,0,1,0
10
British Columbia
16,17,10,7,1,1
52
Quebec
8,19,8,12,1,0
48
Manitoba
2,16,8,5,1,0
32
P.E.I
0,2,0,1,0,0
3
Alberta
7,15,3,6,1,0
32
Ontario
7,25,32,57,5,3
129
Nova Scotia
2,11,1,10,1,0
25
Pacific Ocean
2,1,1,0,1,0
5
Saskatchewan
6,17,4,6,2,0
35
New Brunswick
4,10,0,4,0,0
18
Source: RDI, 1994
D.R.S. '94

Insect defoliation and fire are major forest disturbances

The world's forests are receiving more attention as awareness of their importance increases on a global scale. The earth's rapidly decreasing forest cover creates many significant environmental concerns. First, the exchange of gases and cleansing role of forests directly impact air quality. Second, air quality leads directly to global warming which is an issue for all societies on all continents. Finally, the loss of biodiversity has become a major global concern as the number of species at risk, or already extinct climbs steadily. Forests also play key roles in regulating water systems, preventing erosion and providing wildlife habitat. Major international conventions on biodiversity and climate change signify recognition among all nations that responsible forest management is needed to ensure not only the needs of their citizens, but also the entire global community.

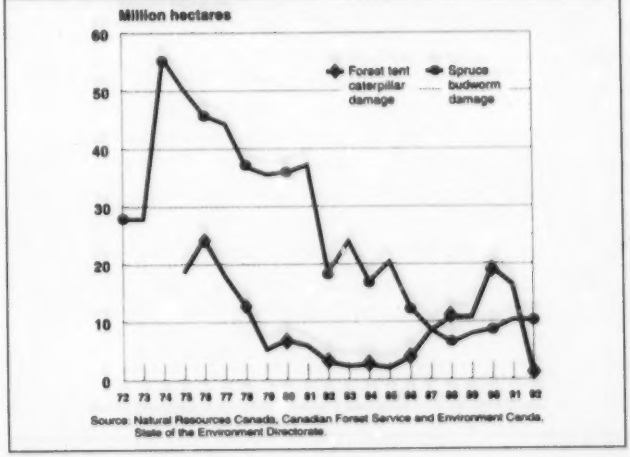
Canada is a major forest nation with 416 million hectares of a variety of forest types. Eight major forest regions are recognized, and 14 of 15 terrestrial ecozones contain forests. Ninety-four percent of Canada's forests are owned publicly, with 12 percent protected from harvest. Forest management is controlled provincially. Approximately 57 percent of Canada's forests are capable of producing timber products, but only 28 percent currently are managed for timber purposes. Most Canadian forests are even-aged owing to cyclical widespread disturbances such as fire, insect infestations and harvest. The ecological impacts of disturbance vary in duration and severity depending on the intensity of fire or infestation and the type of harvest conducted.

Forest disturbance

Insect defoliation is the major cause of disturbance to Canada's forests, with two major species involved: spruce budworm and forest tent caterpillars (Figure 34). Spruce budworm infestations cover extensive areas periodically, with more than 10 percent of Canada's forested area affected between 1974 and 1977. Spruce budworm defoliation has decreased irregularly during the last 18 years, but continued to impact about 10 million hectares per year between 1987 and 1992.

Monitoring of forest tent caterpillar defoliation began in 1976. One peak infestation occurred in the mid-1970s and affected

Figure 34
Forest disturbance by insect defoliation in Canada (million hectares), 1972-1992



Source: Natural Resources Canada, Canadian Forest Service and Environment Canada, State of the Environment Directorate.

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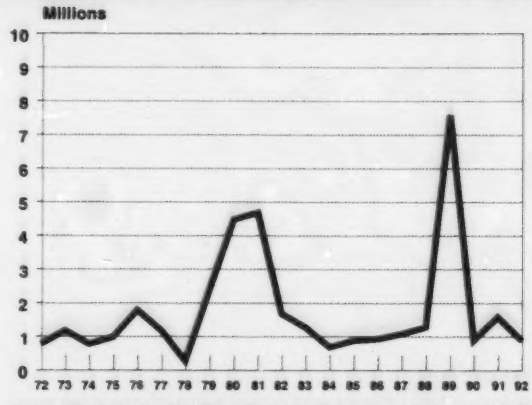
approximately 25 million hectares of forest. A cycle of similar magnitude occurred in 1990, when tent caterpillar damage exceeded that by spruce budworm. Combined, these two major forest pests impact Canada's forest far more than all other disturbance factors combined. Only moderate to severe infestations of the two insects are reported.

Wild fires are a second major cause of disturbance to forests in Canada (Figure 35). Fire damage is extremely variable from year to year, with average annual changes over 5 times the low year values. During 1980 and 1981, less than five million hectares of Canada's forests burned each year. The highest single year damage occurred in 1989 (7.6 million hectares). These peak damage years often are preceded or followed by years during which less than 1 million hectares are damaged by fire. The lowest disturbance by fire was recorded in 1978 (370,000 hectares). All fire damage is reported, regardless of severity.

Figure 35
Forest disturbance by fire in Canada, 1972-1992 (million hectares)



Source: Natural Resources Canada, Canadian Forest Service and Environment Canada, State of the Environment Directorate.

Table 18
Percent distribution of insect defoliation by ecozone[1] in Canada, 1972-75, 1992

Year	Ecozone						
	Montane cordillera	Boreal plain	Taiga plain	Boreal shield	Hudson plain	Mixedwood plain	Atlantic maritime
Spruce budworm							
1972	—	—	—	89%	—	—	11%
1973	—	—	—	89%	—	—	11%
1974	—	—	—	89%	—	—	11%
1975	—	—	—	83%	—	—	17%
1976	—	<1%	—	86%	—	—	14%
1977	—	<1%	—	86%	—	—	14%
1978	—	<1%	<1%	87%	—	—	13%
1979	—	<1%	—	87%	—	—	13%
1980	—	—	—	93%	—	—	7%
1981	—	—	—	73%	—	—	27%
1982	—	<1%	<1%	73%	—	—	27%
1983	—	<1%	<1%	76%	—	—	24%
1984	—	<1%	<1%	91%	—	—	9%
1985	—	<1%	—	91%	—	—	9%
1986	—	<1%	<1%	88%	—	—	12%
1987	—	<1%	<1%	94%	—	—	6%
1988	—	2%	<1%	89%	—	—	9%
1989	—	4%	<1%	89%	—	—	7%
1990	—	6%	2%	90%	—	—	2%
1991	—	4%	1%	92%	—	<1%	3%
1992	—	3%	<1%	95%	—	<1%	1%
Forest tent caterpillar							
1976	—	36%	—	61%	<1%	2%	—
1977	<1%	33%	—	64%	<1%	3%	<1%
1978	—	—	—	94%	1%	5%	—
1979	—	70%	—	27%	<1%	2%	1%
1980	—	85%	—	13%	—	<1%	2%
1981	—	66%	1%	10%	—	1%	21%
1982	—	74%	—	2%	—	—	24%
1983	—	56%	—	1%	—	—	43%
1984	—	73%	—	19%	—	—	8%
1985	—	83%	—	17%	—	—	—
1986	—	55%	—	5%	—	—	—
1987	—	41%	—	58%	—	—	—
1988	1%	45%	—	41%	2%	12%	—
1989	1%	19%	—	67%	5%	7%	—
1990	1%	9%	—	72%	—	18%	—
1991	—	1%	—	99%	—	—	—
1992	—	—	—	99%	—	—	—

Forest harvest is the third major cause of disturbance in Canada's forests. The total area of harvest has increased irregularly between 1972 and 1992, ranging from approximately 600,000 hectares per year during the early 1970s, to 800,000 hectares per year during the early 1990s. Peak harvest years occurred in 1986, 1987 and 1988, when more than 900,000 hectares were clearcut. A harvest of 1 million hectares would constitute 0.2 percent of Canada's total forest area, 0.4 percent of the nation's commercial forest base, or 0.9 percent of the actively managed forest area.

Forest disturbance by ecozone

Fifteen ecozones are recognized in Canada (Figure 36). Although they vary considerably in extent, all are large enough to use for assessment of resources and disturbance. Some of the northern ecozones are unimportant economically in regards to forestry.

Forest damage by insects is concentrated in three ecozones. The Boreal Shield accounts for 73-95 percent of all spruce budworm damage reported and for 2-99 percent of forest tent caterpillar damage between 1976-1992 (Table 18). The Boreal Plain is impacted by forest tent caterpillars in most years, with significant damage reported in some years. Spruce budworm infestations, however, are periodic and light in the forests of the Boreal Plain.

Spruce budworm damage is reported each year for the Atlantic Maritime ecozone, but heavy infestation is infrequent. Forest tent caterpillars occur even less frequently, but noticeable damage was reported between 1981 and 1983 (Table 18). In total, spruce budworm damage is reported in only 5 of the 15 ecozones, and forest tent caterpillars are reported in 7 of the 15 ecozones between 1972-1992.

Table 19
Percent disturbance of annual tree damage by ecozone in Canada, 1972-1992

	Ecozones (see Figure 36)												
Year	TC	BC	PM	MC	BP	TP	P	TS	BS	HP	MWP	AM	SA
1972	2	5	<1	1	14	23	<1	21	28	<1	<1	<1	<1
1973	1	1	<1	1	8	51	<1	25	14	<1	<1	<1	<1
1974	<1	<1	<1	<1	6	4	<1	7	78	1	<1	<1	<1
1975	3	6	<1	<1	4	41	<1	29	14	<1	<1	<1	<1
1976	1	3	<1	1	4	26	<1	20	42	<1	<1	1	<1
1977	6	13	<1	<1	8	22	<1	10	39	<1	<1	<1	<1
1978	<1	6	<1	7	16	25	<1	14	29	<1	<1	1	<1
1979	1	<1	<1	<1	5	58	<1	25	9	<1	—	<1	<1
1980	<1	3	—	<1	21	23	1	9	43	<1	—	<1	—
1981	<1	1	<1	<1	24	26	9	4	35	<1	—	<1	—
1982	2	31	<1	<1	28	27	—	8	4	—	—	<1	—
1983	<1	4	<1	2	2	18	<1	11	59	3	—	<1	—
1984	1	1	—	1	14	14	2	10	57	<1	—	<1	—
1985	<1	12	<1	11	5	4	—	54	12	<1	—	<1	—
1986	2	7	<1	<1	1	35	—	3	46	<1	—	4	<1
1987	2	<1	<1	2	11	39	<1	5	38	<1	—	<1	1
1988	<1	<1	—	<1	24	5	1	20	47	2	—	<1	<1
1989	1	4	<1	<1	16	4	<1	34	41	<1	—	<1	<1
1990	5	13	<1	3	10	14	<1	14	38	<1	—	<1	<1
1991	2	5	<1	<1	7	12	<1	23	47	2	—	<1	<1
1992	1	3	<1	1	14	4	1	6	67	<1	—	<1	<1

approximately 25 million hectares of forest. A cycle of similar magnitude occurred in 1990, when tent caterpillar damage exceeded that by spruce budworm. Combined, these two major forest pests impact Canada's forest far more than all other disturbance factors combined. Only moderate to severe infestations of the two insects are reported.

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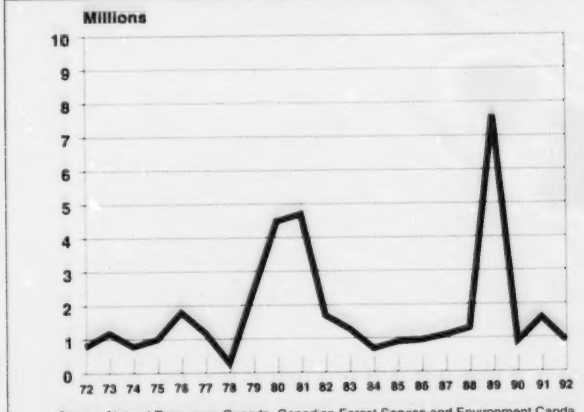

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1988	—	2%	<1%	89%	—	—	9%
1989	—	4%	<1%	89%	—	—	7%
1990	—	6%	2%	90%	—	—	2%
1991	—	4%	1%	92%	—	<1%	3%
1992	—	3%	<1%	95%	—	<1%	1%
Forest tent caterpillar							
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1977	<1%	33%	—	64%	<1%	3%	<1%
1978	—	—	—	94%	1%	5%	—
1979	—	70%	—	27%	<1%	2%	1%
1980	—	85%	—	13%	—	<1%	2%
1981	—	66%	1%	10%	—	1%	21%
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1983	—	56%	—	1%	—	—	43%
1984	—	73%	—	19%	—	—	8%
1985	—	83%	—	17%	—	—	—
1986	—	55%	—	5%	—	—	—
1987	—	41%	—	58%	—	—	—
1988	1%	45%	—	41%	2%	12%	—
1989	1%	19%	—	67%	5%	7%	—
1990	1%	9%	—	72%	—	18%	—
1991	—	1%	—	99%	—	—	—
1992	—	—	—	99%	—	—	—

[1] Ecozones are identified in Figure 36.
Source: Natural Resources Canada, Canadian Forest Service and Environment Canada, State of the Environment Directorate.

Forest harvest is the third major cause of disturbance in Canada's forests. The total area of harvest has increased irregularly between 1972 and 1992, ranging from approximately 600,000 hectares per year during the early 1970s, to 800,000 hectares per year during the early 1990s. Peak harvest years occurred in 1986, 1987 and 1988, when more than 900,000 hectares were clearcut. A harvest of 1 million hectares would constitute 0.2 percent of Canada's total forest area, 0.4 percent of the nation's commercial forest base, or 0.9 percent of the actively managed forest area.

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1973	1	1	<1	1	8	51	<1	25	14	<1	<1	<1	<1
1974	<1	<1	<1	<1	6	4	<1	7	78	1	<1	<1	<1
1975	3	6	<1	<1	4	41	<1	29	14	<1	<1	<1	<1
1976	1	3	<1	1	4	26	<1	20	42	<1	<1	1	<1
1977	6	13	<1	<1	8	22	<1	10	39	<1	<1	<1	<1
1978	<1	6	<1	7	16	25	<1	14	29	<1	<1	1	<1
1979	1	<1	<1	<1	5	58	<1	25	9	<1	—	<1	<1
1980	<1	3	—	<1	21	23	1	9	43	<1	—	<1	—
1981	<1	1	<1	<1	24	26	9	4	35	<1	—	<1	—
1982	2	31	<1	<1	28	27	—	8	4	—	—	<1	—
1983	<1	4	<1	2	2	18	<1	11	59	3	—	<1	—
1984	1	1	—	1	14	14	2	10	57	<1	—	<1	—
1985	<1	12	<1	11	5	4	—	54	12	<1	—	<1	—
1986	2	7	<1	<1	1	35	—	3	46	<1	—	4	<1
1987	2	<1	<1	2	11	39	<1	5	38	<1	—	<1	1
1988	<1	<1	—	<1	24	5	1	20	47	2	—	<1	<1
1989	1	4	<1	<1	16	4	<1	34	41	<1	—	<1	<1
1990	5	13	<1	3	10	14	<1	14	38	<1	—	<1	<1
1991	2	5	<1	<1	7	12	<1	23	47	2	—	<1	<1
1992	1	3	<1	1	14	4	1	6	67	<1	—	<1	<1

Source: Natural Resources Canada, Canadian Forest Service and Environment Canada, State of the Environment Directorate.

Fire damage to Canada's forests varies considerably not only by year (Figure 35) but also among ecozones (Table 19). Four ecozones, however, consistently sustain most reported fire damage: Boreal Plain (BP), Taiga Plain (TP), Taiga Shield (TS) and the Boreal Shield (BS). Moderate periodic fire damage is reported for the Boreal Cordillera (BC) ecozone. In some years, one ecozone may sustain extensive damage while others do not. Fire, therefore, is a significant but unpredictable disturbance in Canada's forests.

Clear-cut forest harvest is reported in 9 of the 15 ecozones. Less than 1 percent of the annual harvest in Canada occurs in the Taiga Cordillera and Taiga Plain, and less than 5 percent in the Boreal Cordillera, the Mixedwood Plain, and Pacific Maritime ecozones (Figure 36). Between 5-15 percent of Canada's annual harvest occurs in the Montane Cordillera and Boreal Plain ecozones.

The two major harvest areas in Canada are the Atlantic Maritime and Boreal Shield ecozones. Between 18-25 percent of the annual harvest occurs in the Atlantic Maritime ecozone. The greatest percentage of Canada's forest harvest, however, occurs in the Boreal Shield. Between 1972 and 1992, 44-54 percent of all harvest occurred in this ecozone. The percentages of harvest by ecozone have remained relatively consistent over the 21 year period.

State of the Environment Directorate, Environment Canada, 1995

Intensity of use of agricultural land increasing

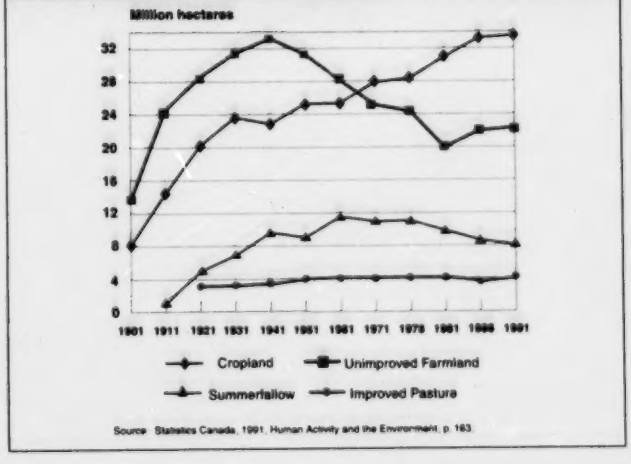
Agriculture remains the most important primary industry in Canada in terms of not only land area affected, but also employment and gross domestic product. Modern agricultural practices, including extensive tillage and use of chemicals, have intensified use of land and increased degradation of the soil resources. Production per unit of land has increased steadily, even as the overall area in farmland in Canada has remained relatively stable for 60 years. Although extensive in total, only 11 percent of Canada's land base is capable of producing any agricultural product, and less than 5 percent can produce crops.

Approximately 68 million hectares of Canada's land area was classified as farmland in 1991. Four of the agricultural land classes recognized by the Census of Agriculture are:

- **Farmland** includes the total area of land operated as an agricultural enterprise. Improved farmland is hectarage under crops, improved pasture or summerfallow. Unimproved farmland includes areas of native pasture, range land, woodland, bogs and marshes.
- **Cropland** signifies the total area seeded for harvest.
- **Summerfallow** includes land that is cultivated or sprayed, but is not being used to produce a cultivated crop.
- **All other lands** includes land on which farm buildings, barnyards, lanes, home gardens, green houses and mushroom houses are located, improved idle land, woodlots, sugarbush, shelterbelts and wetlands.

The area of land in Canada in summerfallow, improved pasture and unimproved farmland peaked or levelled off between 1941 and 1961 (Figure 37). The amount of unimproved farmland decreased steadily and rapidly following a high point of 33 million hectares in 1941, when this category comprised 47 percent of all farmland. A minor increase is apparent between 1981 and 1991. Summerfallow and improved pasture remained relatively stable in area between 1941 and 1981, but a downwards trend is evident in recent years.

Figure 37
Improved and unimproved farmland in Canada 1901-1991



Source: Statistics Canada, 1991, Human Activity and the Environment, p. 163.

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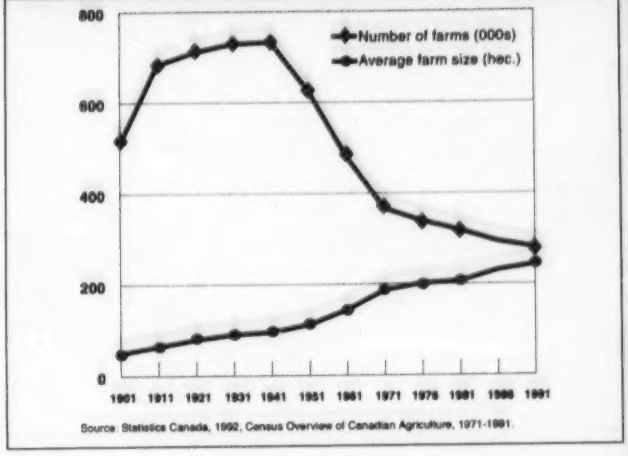
Conversely, the area of cropland has increased steadily between 1941 and 1991, and an increasing upward trend is apparent between 1976 and 1991 (Figure 37). Given the fact that total farmland area has remained stable since 1941, the increase in cropland signifies more intensive use of land previously used as summerfallow, improved pasture or unimproved farmland.

Changing agricultural land use patterns have been accompanied by structural changes in farms (Figure 38). The number of census-farms peaked at 732,000 in Canada in 1941, and decreased rapidly and steadily since. In 1991, only 280,000 census-farms remained. Given that the total agricultural land area has not changed significantly, the average size of census-farms has increased dramatically. Canada's census-farms averaged less than 100 hectares until 1941, but have increased steadily in size since, reaching 242 hectares in 1991. Modern agriculture, therefore, is typified by fewer operators farming larger areas more intensively.



Source: Statistics Canada, 1992, Census Overview of Canadian Agriculture, 1971-1991.

Provincial trends in agricultural land use

Agricultural land use data are estimated for the provinces (Statistics Canada, 1991). Newfoundland is the only province in which a high percentage increase is noticeable in farmland area between 1971 and 1991. The actual area involved, however, is insignificant, and less than 1 percent of the land area was used for agricultural production in 1991. Minor percentage increases in farmland are evident in Manitoba, Saskatchewan, Alberta and British Columbia during the same time period.

Decreases in farmland area of between 16-31 percent are apparent in Eastern Canada between 1971 and 1991 (Table 20). Greatest decrease in farmland occurs in Nova Scotia and New Brunswick, where over 1 in 4 hectares

Province	Area	Farmland area			
		1971	1991	Change 71-91	% in farmland '91
		(hectares)		(percent)	
Newfoundland	37,163,736	25,375	47,353	87	1
Prince Edward Island	566,171	313,482	258,875	17	46
Nova Scotia	5,284,093	537,777	397,031	-26	8
New Brunswick	7,156,913	541,928	375,631	-31	5
Quebec	135,780,890	4,371,056	3,429,810	-22	3
Ontario	91,743,326	6,460,019	5,451,379	-16	6
Manitoba	54,770,473	7,692,369	7,724,990	<1	14
Saskatchewan	57,011,330	26,327,581	26,865,488	2	47
Alberta	63,823,287	20,034,481	20,811,002	4	33
British Columbia	89,307,184	2,358,382	2,392,341	2	3
Canada	922,097,313	68,662,448	67,573,700	-1	7

farmed in 1971 was not farmed in 1991. Quebec, Prince Edward Island and Ontario experienced decreases of 16-22 percent of their 1971 farmland area by 1991. Trends in farmland area, therefore, differ between Eastern and Western Canada.

The percentage of land that is classified as farmland also varies greatly among provinces (Table 20). Prince Edward Island and the Prairie Provinces of Saskatchewan and Alberta have significant proportions of their land areas in farming enterprises. The environments of these provinces, therefore, are impacted most by agriculture. Conversely, farming enterprises are distributed more widely among other land use areas in other provinces. The extensive nature of land use may or may not relate to the intensity of use of local land resources.

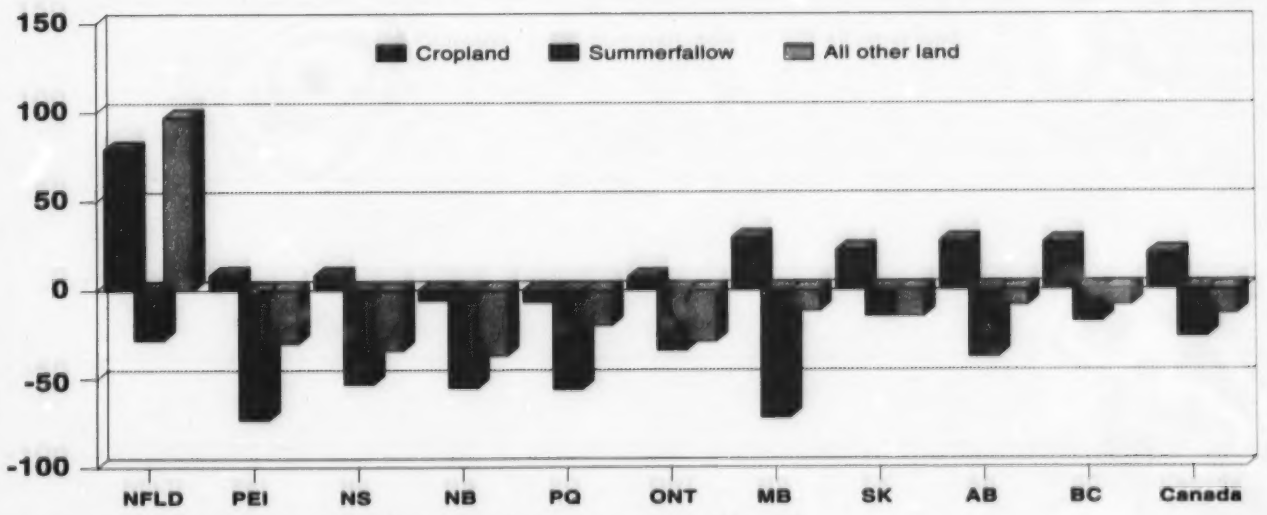
Changes in the intensity of farmland use by province are reflected by comparison of area devoted to intensive cropland and summerfallow use, with that of areas remaining in "all other lands" (Figure 39). Use of cropland increased in all provinces except New Brunswick and Quebec, where minor decreases occurred. Major percentage increases occurred in cropland areas in Newfoundland, Manitoba, Saskatchewan, Alberta and British Columbia. Across Canada, a 20 percent increase in cropland is evident between 1971 and 1991.

Summerfallow area decreased by 27 percent across Canada between 1971 and 1991 (Figure 39). Because summerfallow is almost exclusively a Prairie region practice, decreases in Manitoba (-72 percent), Saskatchewan (-15 percent) and Alberta (-38 percent) represent most of the overall Canadian decrease.

Wide variation occurs in percentage change among land uses on farmland in the "All Other Land" category, where a 14 percent decrease is evident across Canada (Figure 39). Decreases between 20-40 percent occur in all provinces in eastern Canada except Newfoundland, which is the only province with an increase in this category. Percent decreases in "all other lands" is lower in western Canada.

Overall, the area of farmland in Canada has remained stable for decades, but the number of farms has decreased with a concommitant increase in average size of farms. Larger, more intensively worked agricultural operations are evidenced by increases in cropland area, and decreases in summerfallow and woodland. Trends toward intensification signal not only increased mechanical and chemical influences on soil, but also coincidental loss in natural habitats and species diversity on Canadian farms.

Figure 39
Percent change in farmland area for cropland, summerfallow and all other land in Canada, 1971-1991

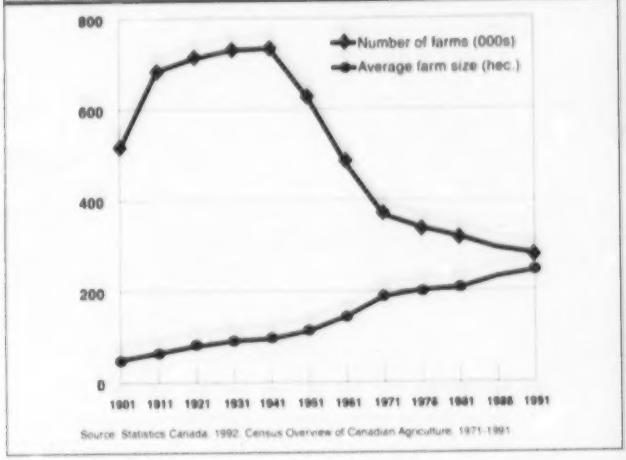


Source: Statistics Canada, 1992, Census Overview of Canadian Agriculture: 1971-1991.

Conversely, the area of cropland has increased steadily between 1941 and 1991, and an increasing upward trend is apparent between 1976 and 1991 (Figure 37). Given the fact that total farmland area has remained stable since 1941, the increase in cropland signifies more intensive use of land previously used as summerfallow, improved pasture or unimproved farmland.

Changing agricultural land use patterns have been accompanied by structural changes in farms (Figure 38). The number of census-farms peaked at 732,000 in Canada in 1941, and decreased rapidly and steadily since. In 1991, only 280,000 census-farms remained. Given that the total agricultural land area has not changed significantly, the average size of census-farms has increased dramatically. Canada's census-farms averaged less than 100 hectares until 1941, but have increased steadily in size since, reaching 242 hectares in 1991. Modern agriculture, therefore, is typified by fewer operators farming larger areas more intensively.

Figure 38
Trends in the number and average size of farms in Canada, 1901-1991



Source: Statistics Canada, 1992. Census Overview of Canadian Agriculture: 1971-1991.

Provincial trends in agricultural land use

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Table 20
Agricultural land use by province, 1971 and 1991[1]

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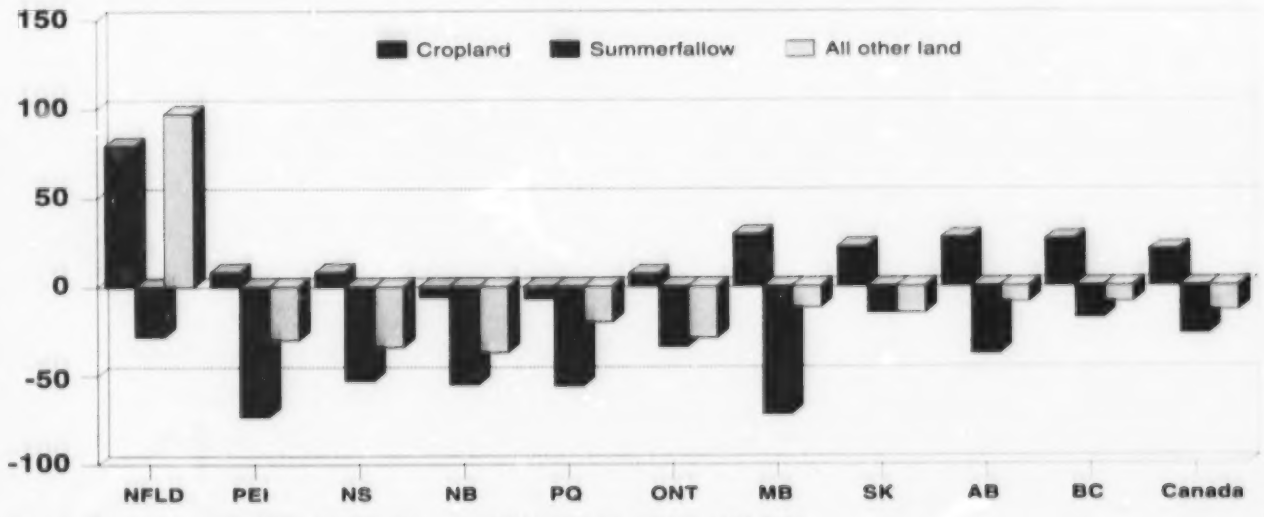
Figure 39
Provincial changes in farmland area for cropland, summerfallow and all other land in Canada 1971-1991



Source: Statistics Canada, 1992, Census Overview of Canadian Agriculture: 1971-1991.